

FURUNO

INSTALLATION MANUAL

INMARSAT B MOBILE EARTH STATION

FELCOM 80A ... (For Class 1)

MODEL FELCOM 80B ... (For Class 2)

Commissioning test

Any person or organization desiring to operate an Inmarsat B station within the Inmarsat system must have the station approved by Inmarsat for access to the system. The station must undergo a simple series of tests to verify that it functions properly. This test is usually conducted by the installer.

About Facsimile

For facsimile PX-150 and UF-128M, refer to this manual. For facsimiles other than them, please see the respective Operator's Manuals. Note that connection to FELCOM 80 is the same for all facsimiles.



FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

© FURUNO ELECTRIC CO., LTD.

9-52, Ashihara-cho,
Nishinomiya, Japan 662

Telephone: 0798-65-2111
Telefax: 0798-65-4200(6111)

All rights reserved. Printed in Japan

(TATA)

PUB. No. IME-55890-N
FELCOM 80A/B

-Your Local Agent/Dealer

Initial : MAR 1994
N : FEB. 24, 1997





SAFETY INSTRUCTIONS

"DANGER", "WARNING" and "CAUTION" notices appear throughout this manual. It is the responsibility of the installer of the equipment to read, understand and follow these notices. If you have any questions regarding these safety instructions, please contact a FURUNO agent or dealer.



DANGER

This notice indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

This notice indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

This notice indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage.

⚠ WARNING



Do not work inside the equipment unless totally familiar with electrical circuits.

Hazardous voltage which can cause electrical shock, burn or serious injury exists inside the equipment.



Do not approach the radome closer than 6 meters when it is transmitting.

The radome emits radio waves which can be harmful to the human body, particularly the eyes.



Turn off the power at the mains switchboard before beginning the installation. Post a sign near the switch to indicate it should not be turned on while the equipment is being installed.

Fire, electrical shock or serious injury can result if the power is left on or is applied while the equipment is being installed.

Do not install the equipment where flammable gases are stored.

Fire may result.

⚠ CAUTION



Ground the equipment to prevent electrical shock and mutual interference.

Confirm that the power supply voltage is compatible with the voltage rating of the equipment.

Connection to the wrong power supply can cause fire or equipment damage. The voltage rating appears on the label at the rear of the display unit.

Use the correct fuse.

Use of a wrong fuse can cause fire or equipment damage.

Table of Contents

Complete Set	v
Optional Equipment	vi
Installation Materials	vii
1. System Configuration	1-1
2. Mounting of Units	2-1
2.1 Antenna Unit	2-1
2.2 Communication Unit.....	2-10
2.3 Telephone.....	2-12
2.4 Facsimile PX-150/UF-128M.....	2-13
2.5 Terminal Unit (personal computer)	2-14
2.6 Printer	2-16
2.7 Junction Box IB-310	2-16
2.8 Junction Box IB-311	2-16
2.9 Telex Distress Alert Button IB-350	2-17
2.10 Telephone Distress Button IB-360.....	2-17
2.11 Mounting of Optional Equipment.....	2-17
3. Wiring	3-1
3.1 Communication Unit.....	3-1
3.2 Junction Box IB-310	3-3
3.3 Junction Box IB-311	3-4
3.4 Telex Distress Alert Button IB-350	3-5
3.5 Telephone Distress Button IB-360	3-5
3.6 Wiring Inside the Antenna Unit	3-6
3.7 Terminal Unit (Class 1 only).....	3-8
3.8 Printer	3-8
3.9 Telephone (s).....	3-8
3.10 When using Antenna Cable of FELCOM 5B	3-9
3.11 When using 70 m or 100 m Antenna Cable	3-10
4. Connection of Optional Equipment	4-1
4.1 Facsimile.....	4-1
4.2 Received Call Unit IC-301	4-2
4.3 Multiple Telephones/Facsimiles.....	4-3

5. Initial Settings	5-1
5.1 DIP Switch Setting and Hatch Direction	5-1
5.2 Setting of Telephone	5-3
5.3 Setting of Gyro Converter on AD CONVERTER Board	5-4
5.4 Initialization of Facsimile PX-150/UF-128M	5-13
5.4a Initialization of Facsimile PX-1.	5-14
5.5 Switch Settings for Antenna Cable Length	5-15
5.6 Attaching the Compass Safe Distance Seals and PC Keyboard Sticker	5-16
6. Checking the Installation	6-1
7. System Setup by PC	7-1
7.1 Turning on the Power	7-1
7.2 Making FELCOM 80 System Program	7-3
7.3 Setting Up	7-6
7.4 Registering Answerback Code (Class 1 only)	7-7
7.5 Updating Master System Program Disk	7-8
8. Card Reader	8-1
8.1 Card Reader Configuration	8-1
8.2 Mounting the Card Reader	8-1
8.3 Connection of Card Reader	8-2
8.4 Setting up Telephones/Facsimiles	8-3
List of Drawings	D-0

Complete Set

NO	Name	Type	Code No.	Mass (kg)	Qty	Remarks
1	Antenna Unit	IB-180		130	1	
2	Communication Unit	IB-280-C1		15	1	Class 1
		IB-280-C2		15	(1)	Class 2
3	Terminal Unit (personal computer)	T-2110		2.9	1	Class 1 only With AC adapter
4	Printer	PP-510		7	1	for 24 VDC, Class 1 only
5	Telephone	FC622SL1WG		1	1	
6	Junction Box	IB-310			1	
7	Junction Box	IB-311			1	
8	Telex Distress Alert Button	IB-350			1	
9	Telephone Distress Button	IB-360			1	
10	Spare Parts	SP16-00400	000-043-286		1 set	For communication unit
11	Communication Unit Installation Materials	CP16-00400	000-043-287		1 set	
12	Antenna Unit Installation Materials (*1)	CP16-00300	000-043-282		1 set	No antenna cable
		CP16-00310	000-043-283		1 set	Antenna cable 30m
		CP16-00320	000-043-284		1 set	Antenna cable 40m
		CP16-00330	000-043-285		1 set	Antenna cable 50m
13	Documents				1 set	
14	Accessories				1 set	
15	PHONE I/F Board	16P0083 PHONE I/F OP16-7				For connection of multiple telephones/Facsimiles.

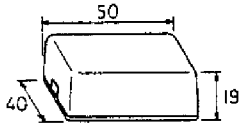
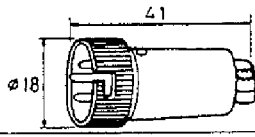
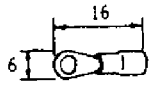
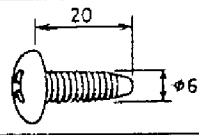
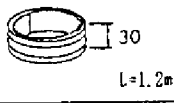
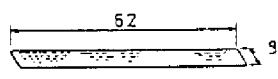
For lists of Installation Materials and Spare Parts, see pages 8-6 and after.

Optional Equipment

NO	Name	Type	Code No.	Mass (kg)	Qty	Remarks
1	Facsimile				1	max. 2
2	Terminal Unit (personal computer)	T-2110		2.9	1	For sub unit or data communication
3	Received Call Unit	IC-301			1	max. 3
4	Telephone	FC622LIWG		1		Additional telephone, total max. 4
5	Modular Jack Box	OP16-8 MJ2S		0.05		
6	Modular Jack Box	OP16-10 BJ-2W WV7111Y		0.2		Exploded type
7	Modular Jack Box	OP16-11 BJ-2W		0.1		Flush type
8	Transformer Unit	RU-1758		12		For 100 – 230 V
		RU-1803		12		For 440 V
9	Terminal Software (w/cable) (For PC having 9P terminal)	IB-50000A	000-043-255			Floppy disk and 5 m cable w/25P – 9P connectors
10	Terminal Software (w/cable) (For PC having 25P terminal)	IB-50000	000-043-254			Floppy disk and 5 m cable w/25P connector at both ends
11	2P Cable	CO-SPEVV- SB-C 0.2 × 2P			1	10/20/30/40/50m (CO-2P)
12	5P Cable	CO-SPEVV- SB-C 0.2 × 5P			1	10/20/30/40/50m (CO-5P)
13	Paper for Printer	T-214 WHT	000-119-433		6	} Either one is delivered.
		A2 1PLY W	000-134-903			
		T-214 WHT × 2 (w/copy)	000-119-385		6	} Either one is delivered.
		A2 2PLY WW	000-134-780			
14	Paper for Facsimile	UG-007B4 (for B4)	004-432-100		6	} Either one is delivered.
		K52 257 × 50M25TRU	000-806-564			
		K52 216 × 50M25TRU	000-806-565		6	Either one is delivered.
15	Printer	PP-510	000-043-256	7	1	
16	Installation Material for Ant. Unit	CP16-00302	004-430-210			For Cable extension
17	Card Reader	MCT-1540	000-043-332	0.17		1 set

FURUNO

CODE NO	004-043-287	16AC-X-9403-5
TYPE	CP16-00400	

工事材料表 INSTALLATION MATERIALS		IB-280 通信制御部 COMMUNICATION CONTROL UNIT			
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 QTY	用途 / 備考 REMARKS
1	ローゼット MODULAR JACK BOX		MJ-2S *GR* CODE NO 000-132-764	1	
2	コネクタ CONNECTOR		RM12BPG-3PA CODE NO 000-133-894	1	
3	圧着端子 CRIMP-ON LUG		FV1.25-3 赤 RED CODE NO 000-538-113	2	
4	+トラスタップシロクネシ TAPPING SCREW		6X20 SUS304 151 CODE NO 000-802-084	4	
5	アース板 COPPER STRAP		05-003-0031-0 CODE NO 590-300-310	1	
6	ハリマーク LABEL		16-007-6927-0 CODE NO 100-222-480	1	FOR COMPASS SAFE DISTANCE
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		

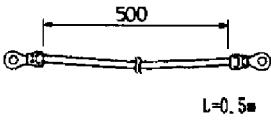
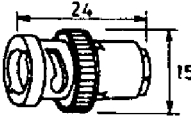
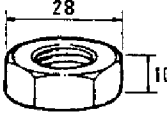
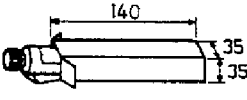
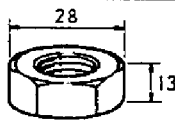
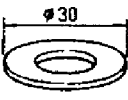
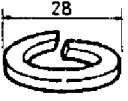
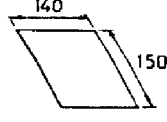
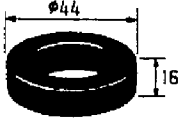
FELCOM 80

図番 (1/1)
DWG. NO. C5589-M04-F

FURUNO ELECTRIC CO., LTD

FURUNO

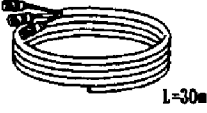


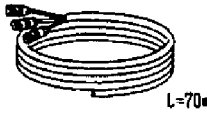

CODE NO.	004-430-080	16AC-X-9401-3
TYPE	CP16-00301	

工事材料表 INSTALLATION MATERIALS		IB-180 アンテナユニット ANTENNA UNIT			
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	アース線 GROUNDING WIRE ASSY.		16S0116 IV-14SG *50CM* CODE NO. 000-132-825	1	
2	コネクタ CONNECTOR		BNC-P-58U CODE NO. 000-136-728	3	
3	六角ナット3種 HEX. NUT		M16 SUS304 CODE NO. 000-805-829	4	
4	スーパーシリホント ADHESIVE		1211 50G CODE NO. 000-854-118	1	
5	六角ナット1種 HEX. NUT		M16 SUS304 CODE NO. 000-863-114	4	
6	ミカキ平座金 FLAT WASHER		M16 SUS304 CODE NO. 000-864-134	4	
7	ハネ座金 SPRING WASHER		M16 SUS304 CODE NO. 000-864-265	4	
8	放射危険ハリマーク CAUTION LABEL		16-007-7902-0 CODE NO. 100-216-340	2	
9	パッキン RUBBER PACKING		16-007-7012-0 CR CODE NO. 100-218-180	1	
			CODE NO.		

図番 (1/1)
DWG. NO. C5589-M03-D

FURUNO


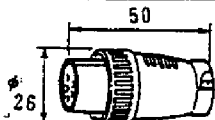
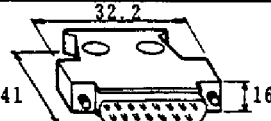
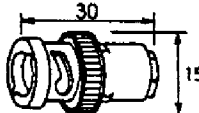
CODE NO.		16AC-X-9402
TYPE		

工事材料表 INSTALLATION MATERIALS		1B-180 アンテナユニット ANTENNA UNIT			
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	信号ケーブル SIGNAL CABLE	 L=30m	S16-3-30	1	選 択 TO BE SELECTED
			CODE NO. 004-430-090		
1	信号ケーブル SIGNAL CABLE	 L=40m	S16-3-40	1	
			CODE NO. 004-430-100		
1	信号ケーブル SIGNAL CABLE	 L=50m	S16-3-50	1	
			CODE NO. 004-430-110		
1	信号ケーブル SIGNAL CABLE	 L=70m	S16-3-70	1	
			CODE NO. 004-430-190		
1	信号ケーブル SIGNAL CABLE	 L=100m	S16-3-100	1	
			CODE NO. 004-430-230		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
(略図の寸法は、参考値です。)				図 番 (1/1)	
				DWG. NO. C5589-M02-B	

FURUNO ELECTRIC CO., LTD

FURUNO

CODE NO.	004-430-210	16AC-X-9419-0
TYPE	CP16-00302	

工事材料表 INSTALLATION MATERIALS		IB-180		アンテナユニット ANTENNA UNIT		
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS	
1	アース線 GROUNDING WIRE		08S0087-0	1		
			CODE NO. 000-108-138			
2	コネクタ CONNECTOR		NJC-205-PM	1		
			CODE NO. 000-109-168			
3	コネクタ CONNECTOR		17JE-23090-02	1		
			CODE NO. 000-132-624			
4	コネクタ CONNECTOR		BNC-P-5	3		
			CODE NO. 000-500-397			
			CODE NO.			
			CODE NO.			
			CODE NO.			
			CODE NO.			
			CODE NO.			
			CODE NO.			

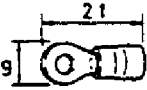
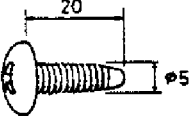

信号ケーブル 70/100m の時のみ必要。
FELCOM 80

(略図の寸法は、参考値です。)

図番 (1/1)
DWG. NO. C5589-M20-A

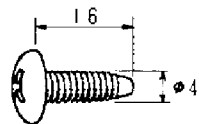
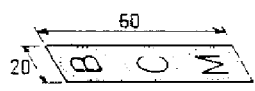
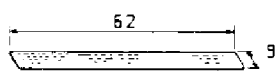
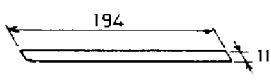

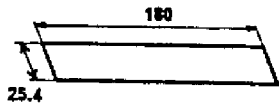
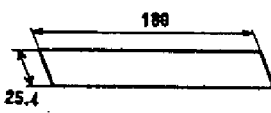
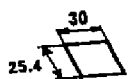
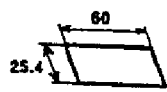
FURUNO

CODE NO.	000-043-262	16AC-X-9406-1
TYPE	CP16-00520	

工事材料表 INSTALLATION MATERIALS		IB-310 接続箱 1 JUNCTION BOX "1"			
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 QTY	用途 / 備考 REMARKS
1	圧着端子 CRIMP-ON LUG		FV2-4 青 BLUE CODE NO. 000-538-118	2	
2	+トラスタッピングネジ TAPPING SCREW		SX20 191 SUS304 CODE NO. 000-802-081	4	
3	アース線 GROUNDING WIRE		08S0087-0 CODE NO. 000-108-138	1	
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		

図番 (1/1)
DWG. NO. C5589-M05-B

CODE NO.	000-043-331	16AC-X-9415-1
TYPE	CP16-00575	

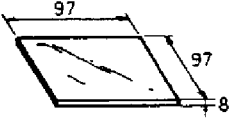

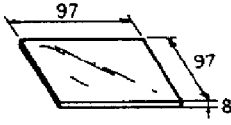
工事材料表 INSTALLATION MATERIALS		ターミナルユニット TERMINAL UNIT			
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	+トラスタップソング"ネジ" TAPPING SCREW		4X16 1512 SUS304 CODE NO. 000-802-080	2	
2	ハリマーク (INMAR) LABEL		16-007-6919-0 CODE NO. 100-217-010	1	"B"マークを貼る STICK "B" LABEL
3	ハリマーク LABEL		16-007-6927-0 CODE NO. 100-222-480	1	COMPASS SAFE DISTANCE
4	キーボードシート FUNCTION KEY SHEET		16-007-6929-0 CODE NO. 100-228-740	1	
5	ターミナルホシ"ハン" DISPLAY SUPPORT		16-007-6811-0 CODE NO. 100-237-640	1	表示部 固定金具
6	ファスナー(1) HOOK LOOP FASTENER		16-007-6812-0 CODE NO. 100-237-650	2	本体固定用
7	ファスナー(2) HOOK LOOP FASTENER		16-007-6813-0 CODE NO. 100-237-660	2	本体固定用
8	ファスナー(3) HOOK LOOP FASTENER		16-007-6814-0 CODE NO. 100-237-670	1	表示部固定用
9	ファスナー(4) HOOK LOOP FASTENER		16-007-6815-0 CODE NO. 100-237-680	1	表示部固定用
			CODE NO.		

(略図の寸法は、参考値です。)

図番 (1/1)
DWG. NO. C5607-M02-B

FURUNO

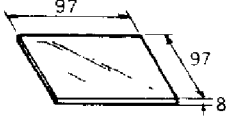

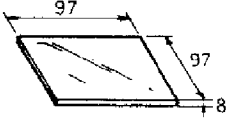
CODE NO	000-043-254
TYPE	IB-50000

工事材料表 INSTALLATION MATERIALS		IB-50000		ターミナルソフトウェア (接続ケーブル付) TERMINAL SOFTWARE (W/CABLE)	
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	フロッピーディスク FLOPPY DISK		MF2-256HD CODE NO. 000-115-862	1	未フォーマット UNFORMAT
2	接続ケーブル CABLE		16S0107 *5M* CODE NO. 000-132-621	1	25P-25P RS232C CROSS
3	フロッピーディスク FLOPPY DISK		16-500-8400 (MF2-256HD) CODE NO. 004-433-260	1	ソフトウェア付 W/SOFTWARE
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
FOR 25P RS-232C PORT OF PC 25P RS232C ポート用					
					図番 (1/1) DWG. NO. C5589-M11-B

FURUNO ELECTRIC CO., LTD

FURUNO

CODE NO.	
TYPE	

工事材料表 INSTALLATION MATERIALS		ターミナルソフトウェア (接続ケーブル付) TERMINAL SOFTWARE (W/CABLE)			
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	フロッピーディスク FLOPPY DISK		MF2-256HD CODE NO. 000-115-862	1	未フォーマット UN FORMAT
2	接続ケーブル CABLE		16S0068 *5M* CODE NO.	1	
3	フロッピーディスク FLOPPY DISK		16-500-8400 (MF2-256HD) CODE NO. 004-433-260	1	ソフトウェア付 W/SOFTWARE
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
FOR 9P RS-232C PORT 9P RS-232Cポート用					
(略図の寸法は、参考値です。)				図番 (1/1) DWG. NO. C5589-M12-C	

FURUNO

CODE NO.	000-043-260	16AC-X-9405-5
TYPE	CP16-00510	

工事材料表 INSTALLATION MATERIALS		FC622SL1WG	電話機 TELEPHONE		
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	取付台 MOUNTING BASE		16-007-6401-1 MFZN4C CODE NO. 100-210-901	1	
2	+トラスタップソケット TAPPING SCREW		4X16 151 SUS304 CODE NO. 000-802-080	4	
3	+ナハパンヘッドネジ PAN HEAD SCREW		3X14 SWRM10 MFZN2-C CODE NO. 000-800-172	1	
4	ハリマーク (INMAR) LABEL		16-007-6919-0 CODE NO. 100-217-010	1	"B"マークを貼る STICK "B" LABEL
5	受話器固定具 HANDSET FIXTURE		16-007-6402-1 SUS301-CSP CODE NO. 100-218-231	1	
6	接着テープ VULCANIZING TAPE		16-007-6403-1 CODE NO. 100-218-241	1	受話器固定用 FOR HANDSET SUPPORTER
7	ハリマーク LABEL		16-007-6404-0 CODE NO. 100-218-250	1	英文用 FOR ENGLISH
8	ハリマーク LABEL		16-007-6405-0 CODE NO. 100-222-470	1	スライド用 FOR SLIDE LABEL
9	ハリマーク LABEL		16-007-6927-0 CODE NO. 100-222-480	1	コンパス安全距離 COMPASS SAFE DISTANCE
			CODE NO.		

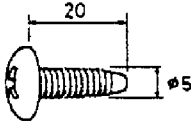
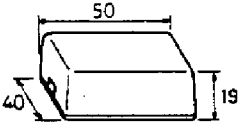
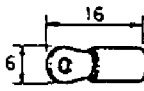
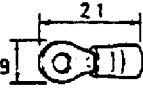

(略図の寸法は、参考値です。)

図番 (1/1)
DWG. NO. C5589-M10-F

FURUNO ELECTRIC CO., LTD

FURUNO

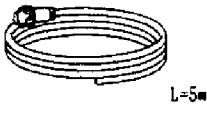
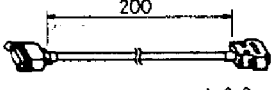

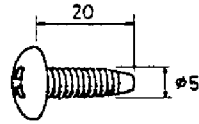
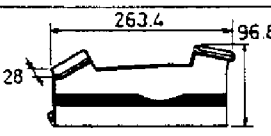
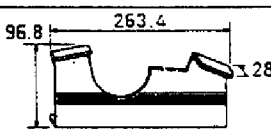
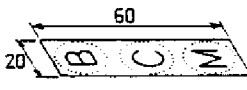
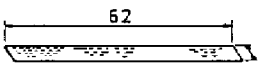
CODE NO	000-043-270	16AC-X-9409-1
TYPE	CP16-00550	

工事材料表 INSTALLATION MATERIALS		OP16-7-1/2 電話インターフェイスセット TELEPHONE INTERFACE KIT			
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	+トラスタップソケット TAPPING SCREW		5X20 191 SUS304 CODE NO 000-802-081	4	
2	ローゼット MODULAR JACK BOX		MJ-2S CODE NO 000-132-764	4	
3	圧着端子 CRIMP-ON LUG		FV1.25-3 赤 RED CODE NO 000-538-113	8	
4	圧着端子 CRIMP-ON LUG		FV2-4 青 BLUE CODE NO 000-538-118	2	
5	アース線 GROUNDING WIRE		08S0087-0 CODE NO 000-108-138	1	
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		

図番 (1/1)
DWG. NO. C5589-M09-B

FURUNO

CODE NO.	000-043-257	16AC-X-9404-2
TYPE	CP16-00500	

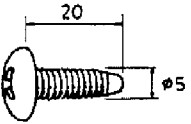

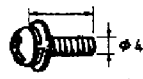

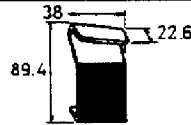
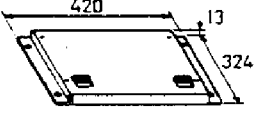
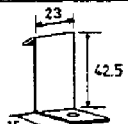
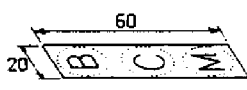
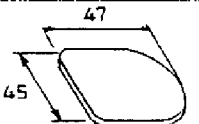
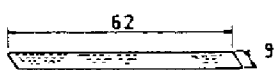
工事材料表 INSTALLATION MATERIALS		PP-510 プリンター PRINTER			
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	電源ケーブル組品 POWER CABLE ASSY.		16S0084 (VCTF-0.75X3C *5M*) CODE NO. 000-132-249	1	
2	変換ケーブル COUPLING CABLE		16S0083 UL2464 IFVV-SB 10PXA WG28 *0.2M* CODE NO. 000-132-614	1	36P-25P ノートパソコン用 FOR NOTEBOOK PC
3	ケーブル組品 CABLE ASSY.		10S1197 UL2464 IFVV-SB 10XA WG28 *5M* CODE NO. 000-566-966	1	36P-36P (57FE-336-205W)
4	+トラスタップソックネジ TAPPING SCREW		5X20 151 SUS304 CODE NO. 000-802-081	4	
5	プリンタ取付板(1) 組品 PRINTER FIXTURE		CP16-00501 SPCC 2.5GY5/1.5 #5-N CODE NO. 004-434-400	1	
6	プリンタ取付板(2) 組品 PRINTER FIXTURE		CP16-00502 SPCC 2.5GY5/1.5 #5-N CODE NO. 004-434-410	1	
7	ハリマーク (INMAR) LABEL		16-007-6919-0 CODE NO. 100-217-010	1	"B"マークを貼る STICK "B" LABEL
8	ハリマーク LABEL		16-007-6927-0 CODE NO. 100-222-480	1	COMPASS SAFE DISTANCE
			CODE NO.		
			CODE NO.		

図番 (1/1)
DWG. NO. C5589-M01-D

FURUNO ELECTRIC CO., LTD

FURUNO

CODE NO.	000-043-265	16AC-X-9407-3
TYPE	CP16-00530	


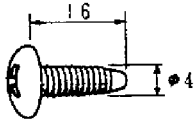
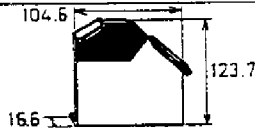
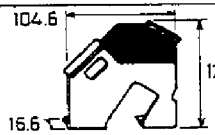
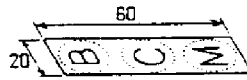
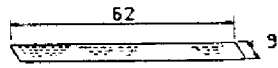
工事材料表 INSTALLATION MATERIALS		UFBP1 PX-150 UF-128M	ファクシミリ FACSIMILE		
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	+トラスタップソケット"ネジ" TAPPING SCREW		5X20 151 SUS304 CODE NO. 000-802-081	4	
2	アース線 GROUNDING WIRE		08S0087-0 CODE NO. 000-108-138	1	
3	±ナハ"セムスネジ" B WASHER HEAD SCREW		M4X8 C2700W MBNI2 CODE NO. 000-881-445	4	
4	FAX 取付板 (A) 組品 FACSIMILE FIXTURE (A)		CP16-00531 SPCC 2.5GY5/1.5 #5-N CODE NO. 004-434-440	1	
5	FAX 取付板 (B) 組品 FACSIMILE FIXTURE (B)		CP16-00532 SPCC 2.5GY5/1.5 #5-N CODE NO. 004-434-450	1	
6	FAX 取付台 組品 FACSIMILE MOUNTING BASE		CP16-00533 SPCC 2.5GY5/1.5 #5-N CODE NO. 004-434-460	1	
7	FAX 取付板 (C) FACSIMILE FIXTURE (C)		16-007-6518-0 SPCC 2.5GY5/1.5 #5-N CODE NO. 100-218-310	1	
8	ハリマーク (INMAR) LABEL		16-007-6919-0 CODE NO. 100-217-010	1	"B"マークを貼る STICK "B" LABEL
9	フック押え板 HOOK FIXTURE		16-007-6519-1 CODE NO. 100-220-341	1	
10	ハリマーク LABEL		16-007-6927-0 CODE NO. 100-222-480	1	COMPASS SAFE DISTANCE

図番 (1/1)
DWG. NO. C5589-M06-D

FURUNO ELECTRIC CO., LTD

FURUNO

CODE NO	000-043-267	16AC-X-9408-2
TYPE	CP16-00540	


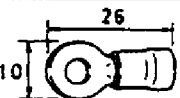
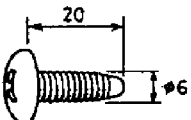
工事材料表 INSTALLATION MATERIALS		KX-PW2 ファクシミリ FACSIMILE			
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	アース線 GROUNDING WIRE		08S0087-0 CODE NO 000-108-138	1	
2	+トラスタッピ〇ンク"ネジ" TAPPING SCREW		4X16 191 SUS304 CODE NO 000-802-080	4	
3	FAX取付板(1)組品 FACSIMILE FIXTURE (1)		CP16-00541 SPCC 2.5GY5/1.5 #5-N CODE NO 004-434-500	1	
4	FAX取付板(2)組品 FACSIMILE FIXTURE (2)		CP16-00542 SPCC 2.5GY5/1.5 #5-N CODE NO 004-434-510	1	
5	ハリマーク (INMAR) LABEL		16-007-6919-0 CODE NO 100-217-010	1	"B"マークを貼る STICK "B" LABEL
6	ハリマーク LABEL		16-007-6927-0 CODE NO 100-222-480	1	COMPASS SAFE DISTANCE
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		

図番 (1/1)
DWG. NO. C5589-M07-C

FURUNO ELECTRIC CO., LTD

FURUNO

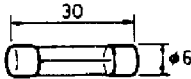
CODE NO.	000-043-271	16AC-X-9410
TYPE	CP16-00560	

工事材料表 INSTALLATION MATERIALS		RU-1758 RU-1803	トランスユニット TRANSFORMER		
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	ヒールコート CABLE		VCT-2.0X3C CODE NO. 000-132-804	1	
2	圧着端子 CRIMP-ON LUG		FV5.5-4 ｷ YEL CODE NO. 000-538-123	8	
3	トラスタップピコクネシ TAPPING SCREW		6X20 SUS304 191 CODE NO. 000-802-084	4	
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		

図番 (1/1)
DWG. NO. C5589-M08-A

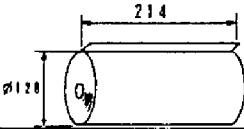
FURUNO

CODE NO.	000-043-286	16AC-X-9301-1
TYPE	SP16-00400	BOX NO. P

SHIP NO.	SPARE PARTS LIST FOR		U S E			SETS PER VESSEL
	IB-280	通信制御ユニット COMMUNICATION UNIT	FELCOM 80	インマルサットB船舶地球局 INMARSAT B SES		
ITEM NO.	NAME OF PART	OUTLINE	DWG. NO. OR TYPE NO.	QUANTITY		REMARKS/CODE NO.
				WORKING	SPARE	
				PER SET	PER VES.	
1	管入りヒューズ GLASS TUBE FUSE		FGBO 7A AC125V	1	4	000-549-013
MFR'S NAME		FURUNO ELECTRIC CO., LTD		DWG. NO.	C5589-P01-B	
						1/1

FURUNO

CODE NO.	000-043-258	16AC-X-9501-1
TYPE	FP16-00100	

付 属 品 表 ACCESSORIES		PP-510 プリンター PRINTER			
番号 No.	名 称 N A M E	略 図 OUTLINE	型 名 / 規 格 DESCRIPTIONS	数 量 Q'TY	用 途 / 備 考 REMARKS
1	フロッタ用紙 RECORDING PAPER		A2 1PLY W CODE NO. 000-134-903	1	
			CODE NO.		

CODE NO.	000-041-315	16AC-X-9412
TYPE	CP16-00700	

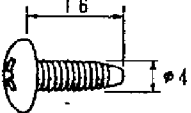
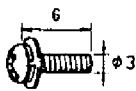
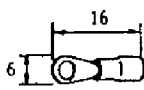

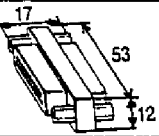
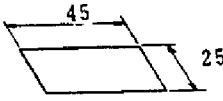
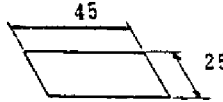
工 事 材 料 表 INSTALLATION MATERIALS		IB-350 遭難警報発呼器 (TELEX) DISTRESS ALERT BUTTON IB-360 遭難電話鈕 (TELEPHONE) DISTRESS BUTTON			
番号 No.	名 称 N A M E	略 図 OUTLINE	型 名 / 規 格 DESCRIPTIONS	数 量 Q'TY	用 途 / 備 考 REMARKS
1	+トラスタツピョクネシ" TAPPING SCREW		4X16 132 SUS304 CODE NO. 000-802-080	2	
2	+ナハ"ヒムスネシ"B WASHER HEAD SCREW		M3X6 SWRM MFZN2-C CODE NO. 000-800-362	4	
3	圧着端子 CRIMP-ON LUG		FV1.25-3 赤 RED CODE NO. 000-538-113	6	
			CODE NO.		
			CODE NO.		


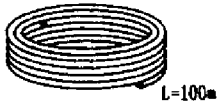

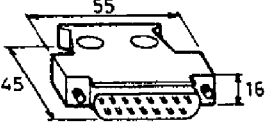
図 番 (1/1)
DWG. NO.

CODE NO.	004-434-960	16AC-X-9416-0
TYPE	CP16-01000	

工事材料表 INSTALLATION MATERIALS		MCT-1540-55	カートリーダー CARD READER		
番号 No.	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	ケーブル(クミヒシ) CABLE ASSY.	 L=5m	16S0164-0 *5M* 両端コネクタ付 CODE NO. 000-137-784	1	
2	コネクタ(ハンカシ) CONNECTOR ADAPTOR		LP321F/F CODE NO. 000-137-787	1	
3	フックテープ(1) HOOK LOOP FASTENER		16-007-6701-0 CODE NO. 100-239-370	2	
4	フックテープ(2) HOOK LOOP FASTENER		16-007-6702-0 CODE NO. 100-239-380	2	
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
(オフショウ) FELCOM80					
(略図の寸法は、参考値です。)				図番 (1/1) DWG. NO. C5589-M17-B	

FURUNO

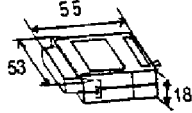
CODE NO	16AC-X-9417-0
TYPE	

工事材料表 INSTALLATION MATERIALS		MCT-1540-55	カートリダ CARD READER		
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	ケーブル(CC37) CABLE	 L=50m	CC3707 *50M* CODE NO 000-137-786	1	
1	ケーブル(CC37) CABLE	 L=100m	CC3707 *100M* CODE NO 000-137-793	1	
1	ケーブル(CC37) CABLE	 L=150m	CC3707 *150M* CODE NO 000-137-794	1	
2	コネクタ CONNECTOR		17JE23250-02 (D8C) CODE NO 000-120-946	2	
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		
			CODE NO		
(オプション) FELCOM 80					
(略図の寸法は、参考値です。)					
					図番 (1/0) DWG. NO. C5589-M18-B

004-437-180
CPI6-01011

FURUNO

CODE NO.	004-435-000	16AC-X-9418-0
TYPE	CP16-01040	

工事材料表 INSTALLATION MATERIALS		MCT-1540-55	カードリーダー CARD READER		
番号 No	名称 NAME	略図 OUTLINE	型名 / 規格 DESCRIPTIONS	数量 Q'TY	用途 / 備考 REMARKS
1	コウナイモテム MODEMU		36330F CODE NO. 000-137-788	2	
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
			CODE NO.		
(オプション) FELCOM80(ケーブル延長時、あじろ外装が必要な時 ケーブルは、現地手配。) (略図の寸法は、参考値です。) <div style="text-align: right;"> 図番 (1/1) DWG. NO. C5589-M19-B </div>					

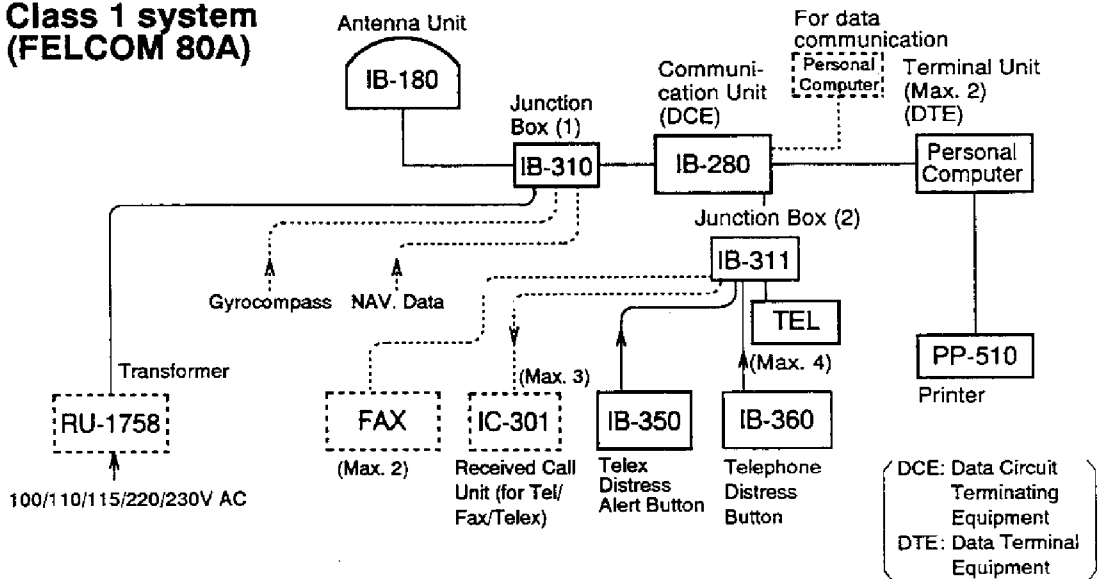
FURUNO ELECTRIC CO., LTD

1. System Configuration

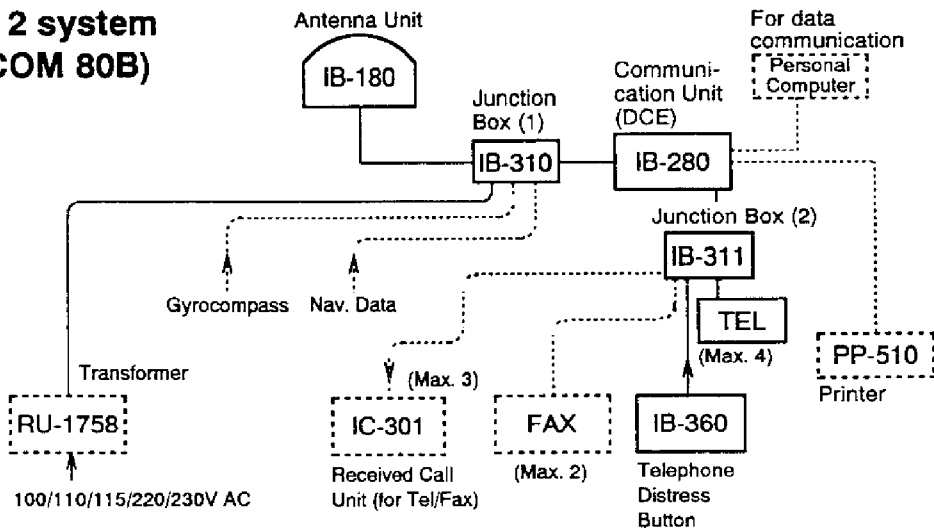
General

This manual provides the information necessary for the installation of the FURUNO FELCOM 80 (A/B) Inmarsat B Mobile Earth Station. This is available in Class 1 (FELCOM 80A) and Class 2 (FELCOM 80B) subtypes. They differ with respect to system configuration and thus communication facilities available. The figures which follow show the system configuration of the Class 1 and Class 2 subtypes.

Class 1 system (FELCOM 80A)



Class 2 system (FELCOM 80B)



NOTE 1: Dashed lines show optional equipment.

2. Mounting of Units

This chapter describes how to mount the units of the system, including optional equipment.

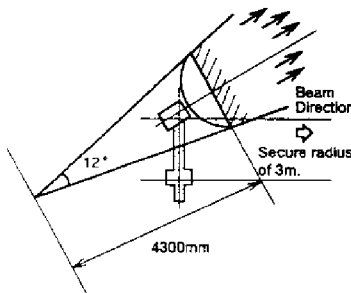
2.1 Antenna Unit

Mounting considerations

General

Interfering objects (especially metallic objects such as masts) near the antenna can, in the worst case, prevent reception or transmission. Further, RF radiation of the antenna will affect the human body. Keep these and the following guidelines in mind when selecting a mounting location for the antenna unit.

Secure unobstructed path in all directions



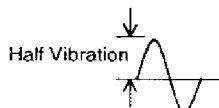
The ideal mounting location secures an unobstructed path between the antenna unit and the satellites, from horizontal to zenith. In other words, whatever the direction the antenna unit is pointing there are no interfering objects within the main beam (12 degrees). While this might be feasible on some vessels, on others it is impossible due to space considerations. The antenna unit should be located at least 3 meters away from masts having a diameter less than 15 centimeters.

Select a location low in vibration

Freq. Range	Max. Amplitude (Half Vibration)
4 to 10Hz	2.54mm (max. 1G)
10 to 15Hz	0.76mm (max. 0.7G)
15 to 25Hz	0.40mm (max. 1G)
25 to 33Hz	0.23mm (max. 1G)

The maximum permissible vibration amplitude in three axis direction should be as shown in the table at left. Consult with the shipyard to determine the mounting location which meets the requirements shown in the table.

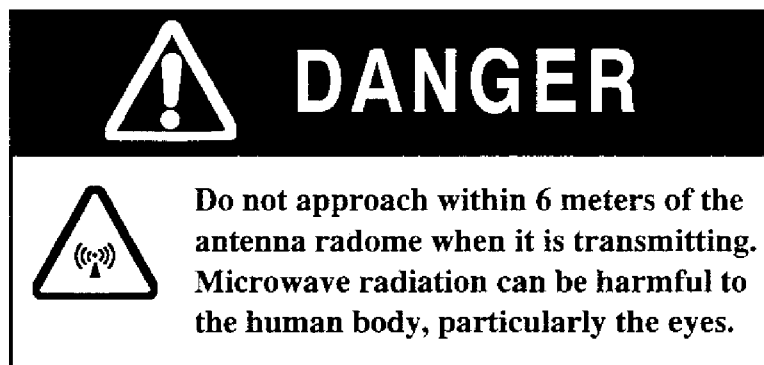
The table at left is taken from Inmarsat's System Definition Manual (SDM) and defines frequency and maximum vibration amplitude.



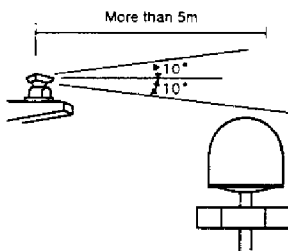
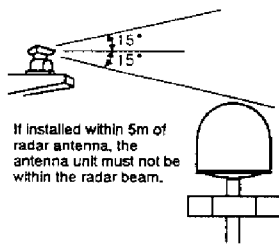
Locate away from passengers and crew

Radio waves can be harmful to the human body. Since safe distances vary by country and ship construction there is no uniform formula for calculating safe distance. However, below are general guidelines.

- Unprotected persons should not approach an area in which the radiation level is higher than 100 W/m^2 . For an Inmarsat B antenna, the radiation level is less than 100 W/m^2 at 1 meter distance from the radome surface.
- Unprotected persons should not approach within 6 meters of a transmitting Inmarsat antenna.



Minimum distance from other antennas



Magnetic compass safe distance

Other mounting guidelines

① HF antennas, communication/navigation antennas

HF antennas should be at least 5 meters from an Inmarsat B antenna. VHF, satellite navigation antenna and other communication antennas should be at least 4 meters away.

② Radar

The radar antenna should be at least 5 meters away to protect the Low Noise Amplifier in the FELCOM 80 antenna. However, if this distance cannot be secured be sure the FELCOM 80 antenna unit is not within the radar beam.

Locating the antenna unit too close to a magnetic compass can affect compass performance. The compass safe distance is 3 meters.

Other important mounting guidelines are

- Locate the antenna unit away from exhaust stacks (foreign material on the radome can interfere with reception and transmission).
- Keep the unit away from heat sources.
- Locate the unit away from places where fuels and chemical solvents are stored.
- Keep in mind the cable length from the junction box (IB-310). Maximum length is 100 meters.

General Mounting (construction of mast)

General

To facilitate servicing, construct a mast more than 1 meter in height from the deck. The paragraphs which follow provides guidelines for selection and construction of the mast.

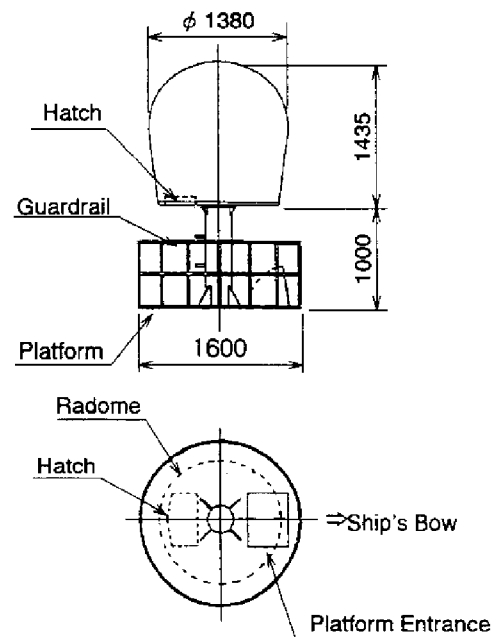
Guardrail, platform

When the mast is tall, fit it with a guardrail and platform (or steps) for the serviceman's safety and convenience.

For servicing ease, the distance between the deck or platform to the antenna unit should be about 1 meter. (In most installations the serviceman stands on the platform while checking the radome. Thus this distance should be secured for ease of servicing.)

The guardrail should be as high as possible for sufficient safety.

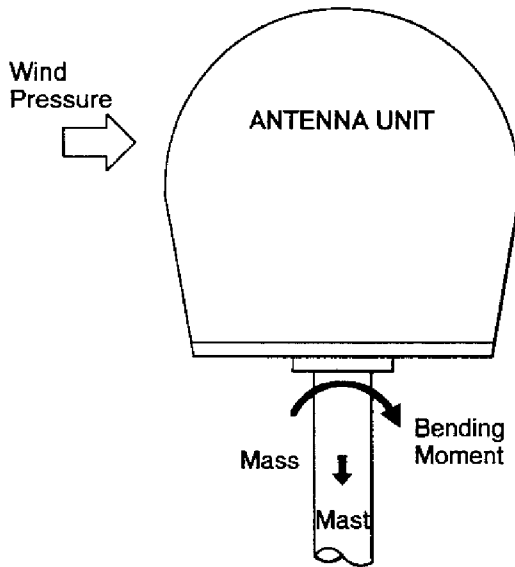
The drawing below gives recommended dimensions for guardrail and platform.



Mast strength

The mast material must be sufficiently strong to meet the demands of the marine environment. It should satisfy the following requirements.

- ① It must be able to support radome mass plus at least 2.5 centimeters of ice and snow. Special consideration should be given if the unit is operated in areas of heavy snow or freezing temperature.
- ② Mast bending moment must be able to withstand expected maximum pitching, rolling and wind pressure. To prevent resonance at low frequencies (about 5 Hz), four stays can be fixed between the mast and the mounting base.



Item	Mass, Moment
Antenna unit mass	130kg
Platform, guardrail mass	
Expected ice and snow	
Maximum wind pressure (Wind speed 75m/s hr)	4850N (495kgf•m)
Maximum bending moment (Wind speed 75m/s hr)	3830N•m (390kgf•m)
Maximum bending moment (Wind speed 75m/s hr, at max. rolling angle)	4560N•m (465kgf•m)
Maximum bending moment (Wind speed 75m/s hr, at max. rolling angle including 0.5G speed added by rolling.)	5200N•m (531kgf•m)

Mounting base

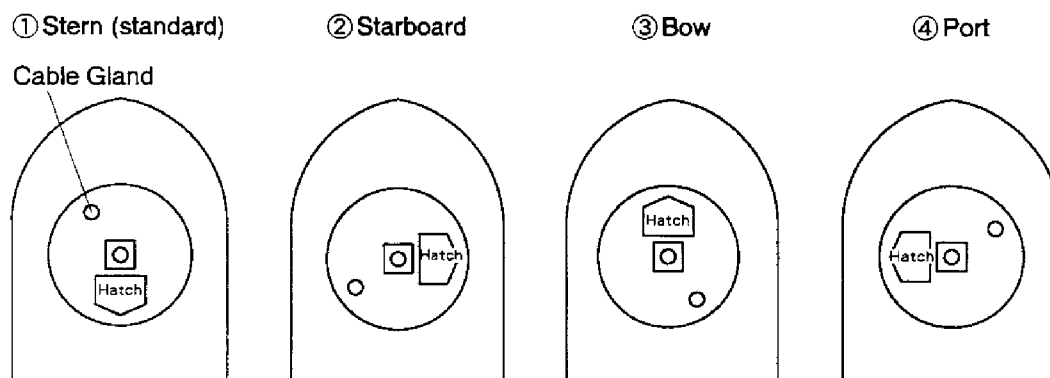
A mounting base is installed between the mast and the antenna unit. Below are guidelines for installation of the mounting base.

- (1) The face of the mounting base should be flat as possible (tolerance: within 2 millimeters of the horizontal plane).
- (2) The mounting base should be parallel with ship's horizontal plane (tolerance: ± 1 degree).
- (3) The fixing bolts of the mounting base should be parallel with the ship's keel line (tolerance: ± 2 degrees).
- (4) Weld a ground bolt (stainless steel, M12 x 40, local supply) to the mast within 50 cm of the ground terminal on the antenna unit. (The length of the ground wire (supplied) is 50 centimeters.)

Changing hatch direction

The standard hatch direction is stern, as shown in ① in the figure below.

If the hatch cannot face the stern, it may face port, starboard or bow direction as shown in ② , ③ and ④ in the figure below. Note that the location of the cable gland changes with hatch direction. After changing hatch direction, change the setting of the DIP Switch S2 on the AZ CPU Board in the antenna unit. See page 5-1.

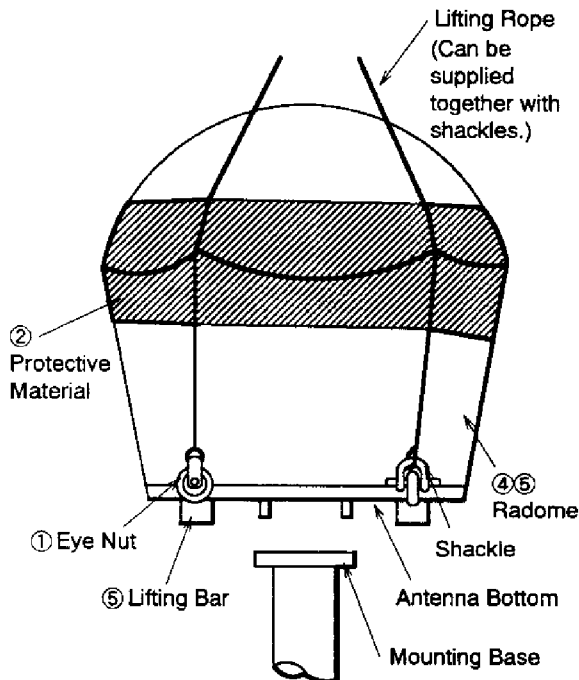


Ship's Bow and Hatch Direction (Ship's bow up)

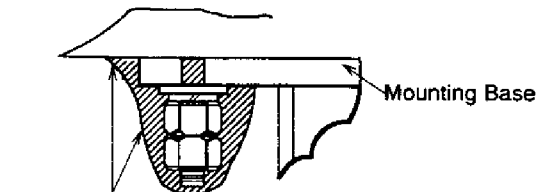
Mounting

Unpacking, visual inspection Carefully unpack the radome and check for damage.

Procedure



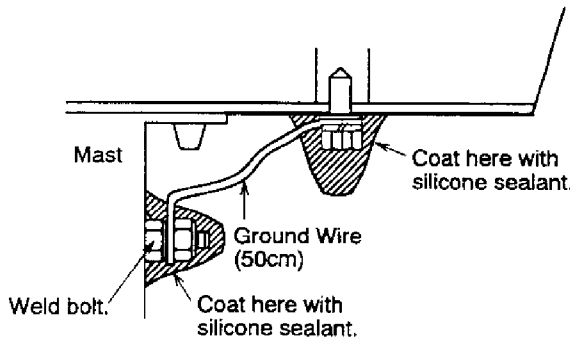
- ① Attach eye nuts to lifting bar. Run lifting rope through shackles.
- ② Cover the portion of the radome which contacts the lifting rope with protective material (rubber mat, etc.), to prevent damage to the radome when hoisting it to the mounting location.
- ③ Hoist the antenna unit to the mounting location.
- ④ Fix the antenna unit to the mounting base (see note below) with nuts, keeping in mind hatch direction (standard direction is stern).
- ⑤ Remove the two lifting bars. Tighten the bolts (4 pcs.) removed to the radome base.



FIXING OF RADOME

Use one of the four fixing bolts on the radome base for connection of ground wire from mast.

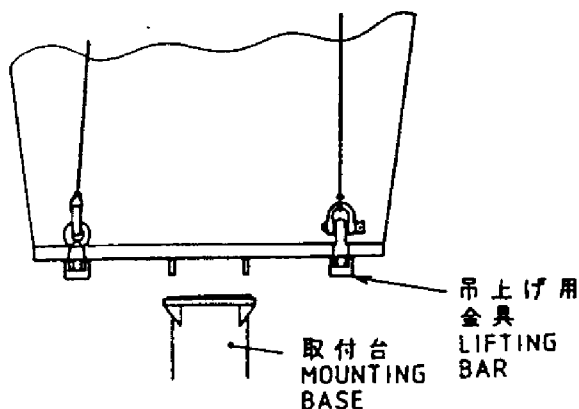
Coat all bolts and nuts with silicone sealant to prevent electrolytic corrosion.



GROUNDING

Note: Do not use rubber packing on the mounting base. The face of the mounting base should be flat as possible (tolerance: within 2mm of the horizontal plane). If tolerance is more than 2mm, insert a spacer (metal) between the antenna bottom and the mounting base.

A



B

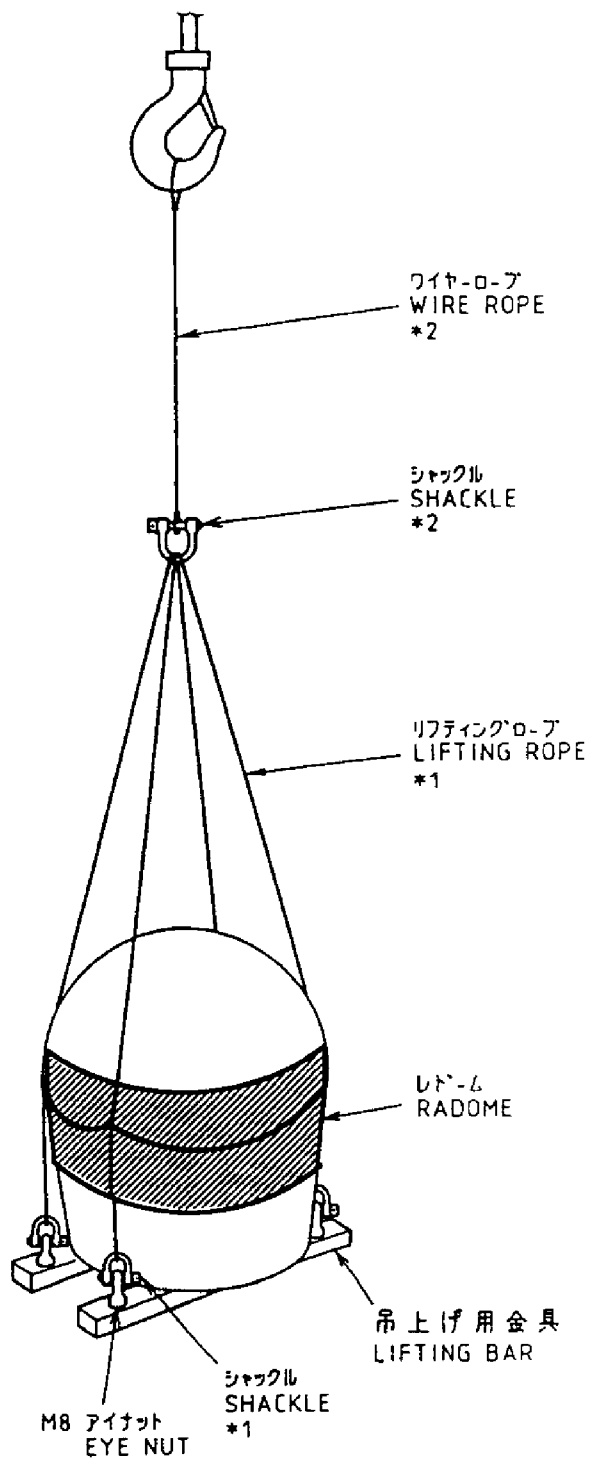
- 注 1. 据付ける前に、取付台のゴミ、汚れを取り除くこと。
2. 据付け後、吊り上げ用金具は取り除くこと。

C

1. WIPE OFF DIRT OR STAIN ON THE MOUNTING BASE, PLACE THE GASKET (M052K1140) ON IT BEFORE LIFTING THE ANTENNA.
2. REMOVE THE LIFTING BAR AFTER INSTALLING THE ANTENNA ON THE MOUNTING BASE.

D

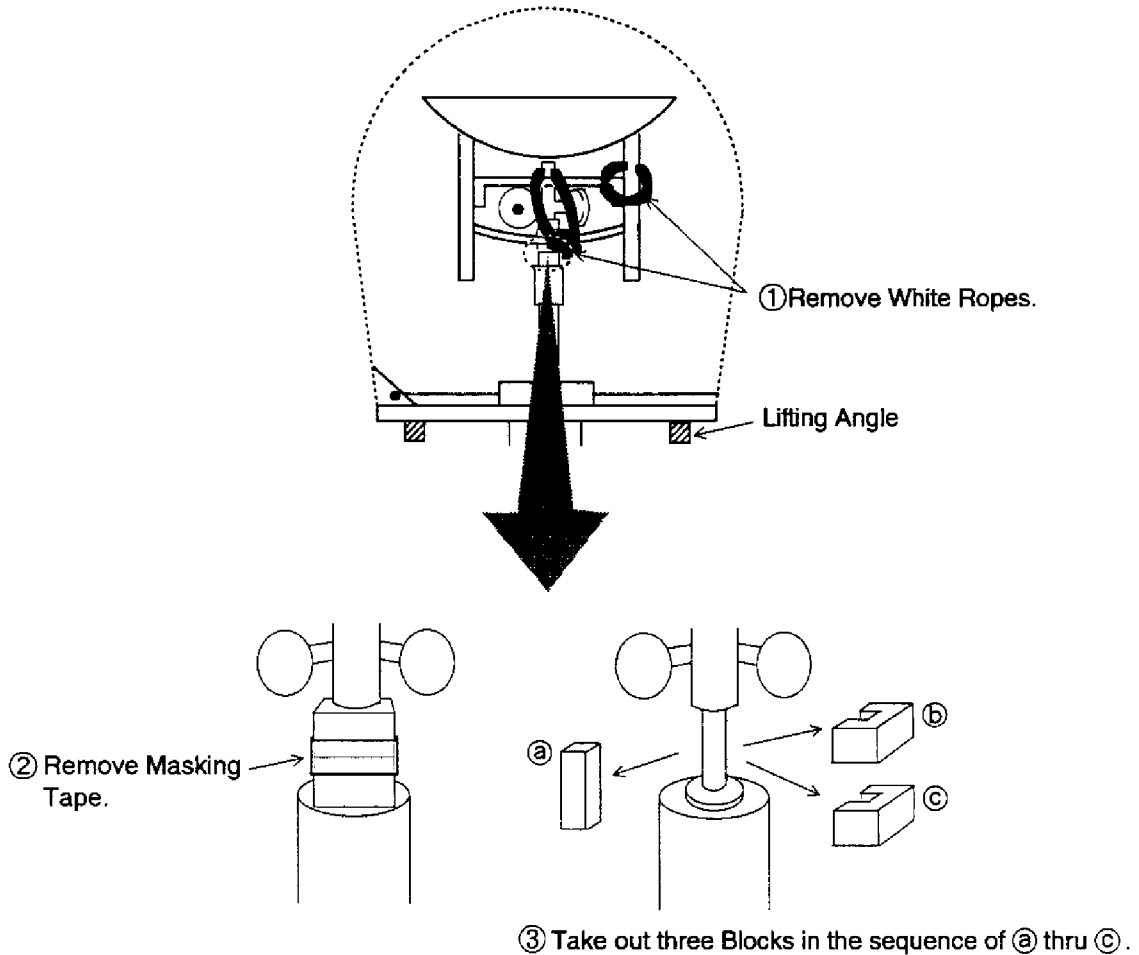
- *1. オプション支給
OPTIONAL SUPPLY
- *2. 造船所手配
SHIPYARD SUPPLY



品番 ITEM	品名 NAME	材質 MATERIAL	数量 QTY	図番 DWG. NO.	摘要 REMARKS
------------	------------	----------------	-----------	----------------	---------------

承認 APPROVED	三角法 THIRD ANGLE	名称 TITLE アンテナユニット吊り上げ要領図 LIFTING OF ANTENNA UNIT			
検図 CHECKED	尺度 SCALE				
製図 DRAWN	質量 MASS 130 kg	図番 DWG.NO	C5484-008-B		

- ⑥ The stabilizer in the radome is tied by ropes to prevent damage to it during shipment and installation. Cut and remove them at this time. Further carefully remove three blocks shown below.



**Attach
electromagnetic
wave warning
sticker**

Stickers which warn of electromagnetic waves are supplied with the installation materials. Attach them as follows

- ① To the radome mast where it can easily be seen.
- ② In a noticeable location in the stairwell leading to the deck where the antenna unit is installed.

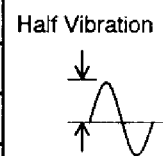
2.2 Communication Unit

Mounting considerations

Vibration conditions

The mounting location should satisfy the conditions of vibration amplitude tabulated below.

Frequency Range (Hz)	Maximum Amplitude (Half vibration)
4 to 15	0.76 (max. 0.7G)
15 to 25	0.40 (max. 1G)
25 to 33	0.23 (max. 1G)
33 to 40	0.13 (max. 0.84G)
40 to 50	0.07 (max. 0.7G)



Environmental conditions

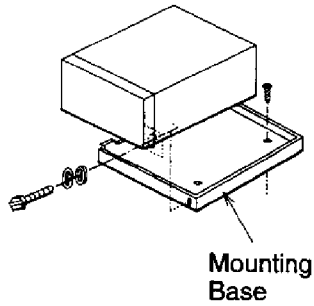
The mounting location should satisfy the following conditions.

- The usable temperature range is 0 to 45 °C .
- Select a location which is well ventilated.
- The location should be clean, and moderate and stable in temperature and humidity.
- Be sure to leave sufficient space around the unit for maintenance and checking.
- Locate the unit well away from high power HF band radiotelephones and antenna feeders.
- Separate the unit at least 4 meters from a magnetic compass.
- Be sure the mounting location is strong enough to support the weight of the unit (15 kg) under conditions of vibration normally encountered on the vessel.

Mounting

Procedure

Before mounting the unit, lay cables, fabricate connectors and establish the ground system. Then, mount the unit as follows.



1. Fix the mounting base to the mounting location with four tapping screws.
2. Lay the unit on the top of the mounting base.
3. Fix the unit to the mounting base with bolts, spring washers and flat washers. Confirm that the unit is firmly fastened by pushing and pulling it by hand.

2.3 Telephone

General

The telephone can be installed on a tabletop or a bulkhead. Select a location where the unit can easily be operated.

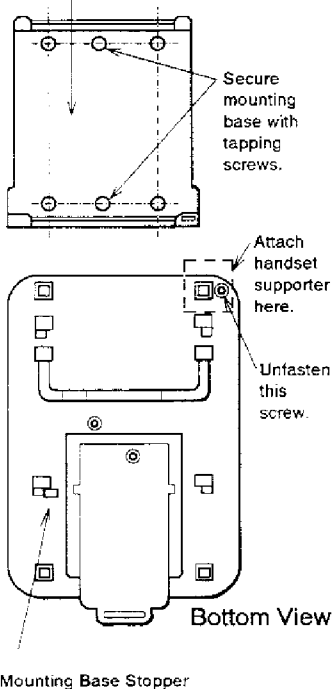
- For installation on a wooden table, use the mounting base and tapping screws (supplied).
- For installation on a steel table, fix the telephone with nuts and bolts.
- For bulkhead mounting, use the bulkhead mounting base (supplied by telephone accessories).

Mounting location

Select a location where temperature and humidity are moderate and stable. Secure sufficient space around the unit for ease of operation and maintenance.

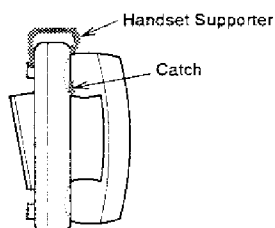
Mounting

Mounting Base (Table top: Use installation materials.
Bulkhead: Use telephone accessories.)



The mounting dimensions are given in the outline drawing at the end of this manual. Determine the mounting location, leaving sufficient space around the unit, and then fix the mounting base to the mounting location. The mounting base is different for bulkhead and tabletop mounting, however the mounting procedure is the same for all.

1. Fix the mounting base to the mounting location with two tapping screws.
2. On the underside of the telephone, unfasten the screw shown in the figure at left. (The screw may be discarded.) Attach double-sided tape (supplied) to the handset supporter. Fasten the handset supporter to the underside of the telephone with long screw (supplied).
3. The catch in the receiver cradle functions to hang up the handset completely. Set the catch in the upward position as shown below (To detach the handset from the hanger, slide it upward).
4. Set the telephone to the mounting base.
5. Attach the "SLIDE" label supplied on the handset.
6. Attach English language label (supplied) to telephone.



2.4 Facsimile PX-150/UF-128M

General

Facsimile PX-150 or UF-128M is optionally supplied. For installation of other facsimile, see its operator's manual.

Mounting considerations

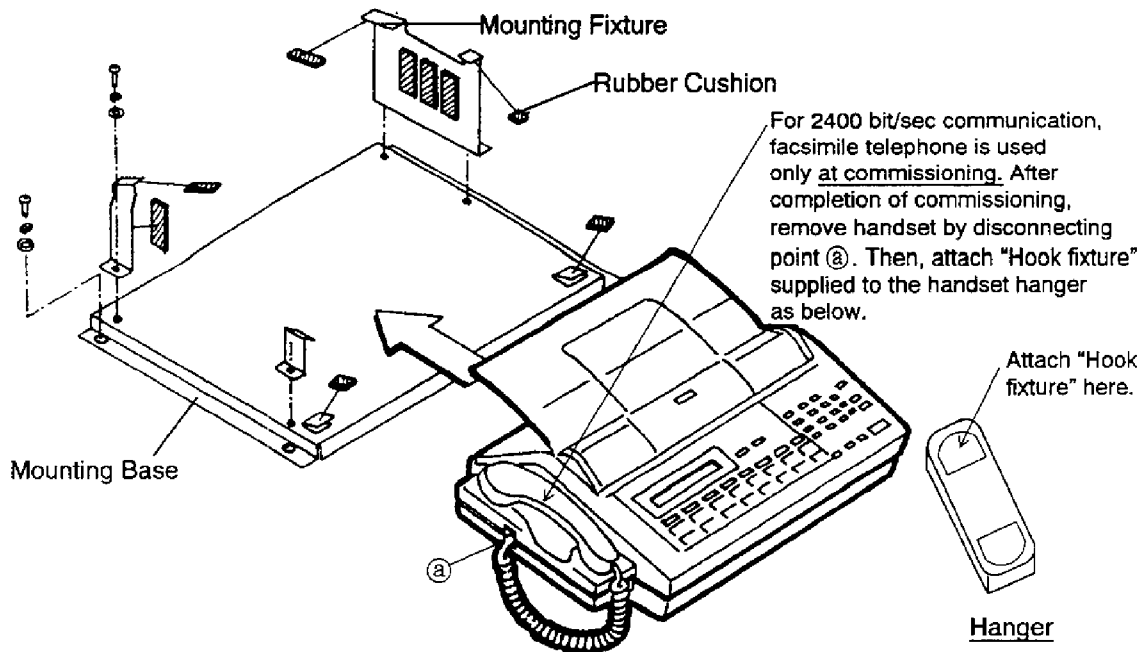
- Select a place where temperature and humidity are stable and moderate.
- Select a place where dust is minimal.
- Leave sufficient space around the sides and rear of the unit for maintenance and checking.
- This unit cannot be fixed to a bulkhead.
- Mount this unit in parallel with "fore-aft" line (ship's keel line) to minimize vibration of paper by ship's rolling.

Mounting

Mount the unit on a tabletop, where it can be easily operated. For wooden desk, fix the mounting base and the mounting fixtures to the mounting location with tapping screws. For steel desk, use nuts and bolts instead of tapping screws.

For detailed instructions, see the facsimile's owner's manual.

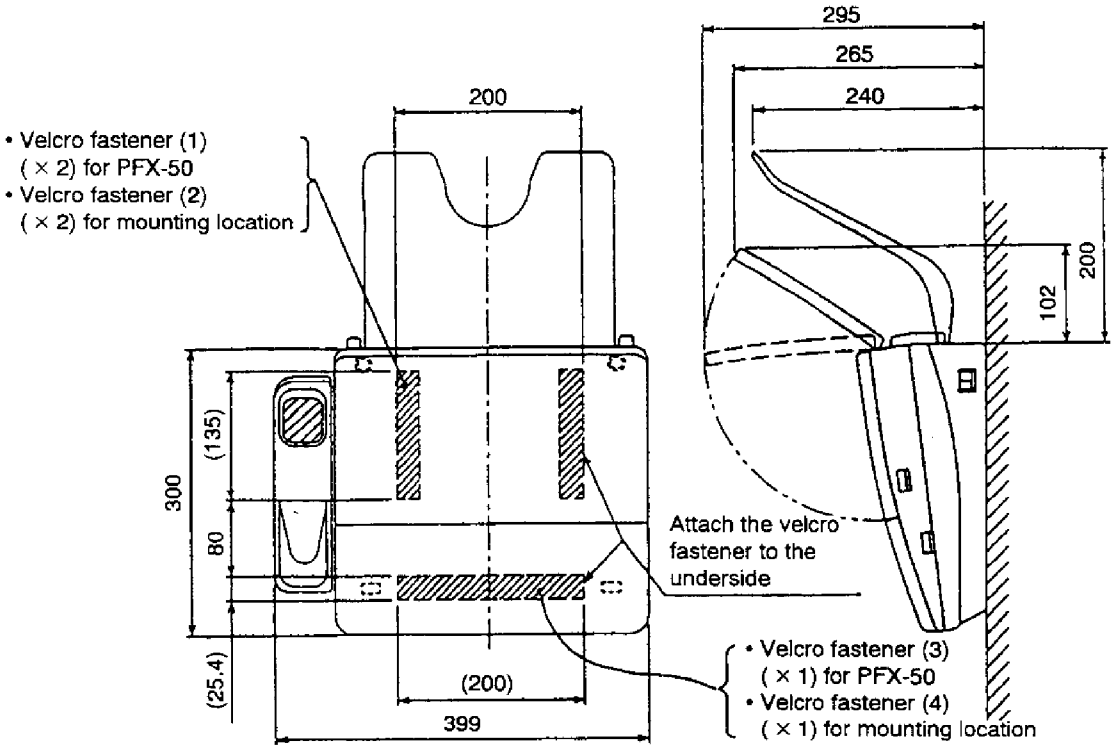
1. Fix the rubber cushions to the mounting fixtures and mounting base as shown in the figure below.
2. Fix the mounting base to the mounting location.
3. Set the facsimile to the mounting base.
4. Fix the mounting fixtures with tapping screws.



Mounting the PFX-50

Refer to the drawing below. Use only the installation materials supplied.

1. Attach the “rough” velcro fasteners to the mounting location as shown in the drawing below.
2. Attach the “smooth” velcro fasteners to the underside of the PFX-50 as shown in the drawing below.
3. Set the PFX-50 on the mounting location and press down firmly.
(Equipment should not move by ship’s vibration.)
4. Attach key label to facsimile key panel.



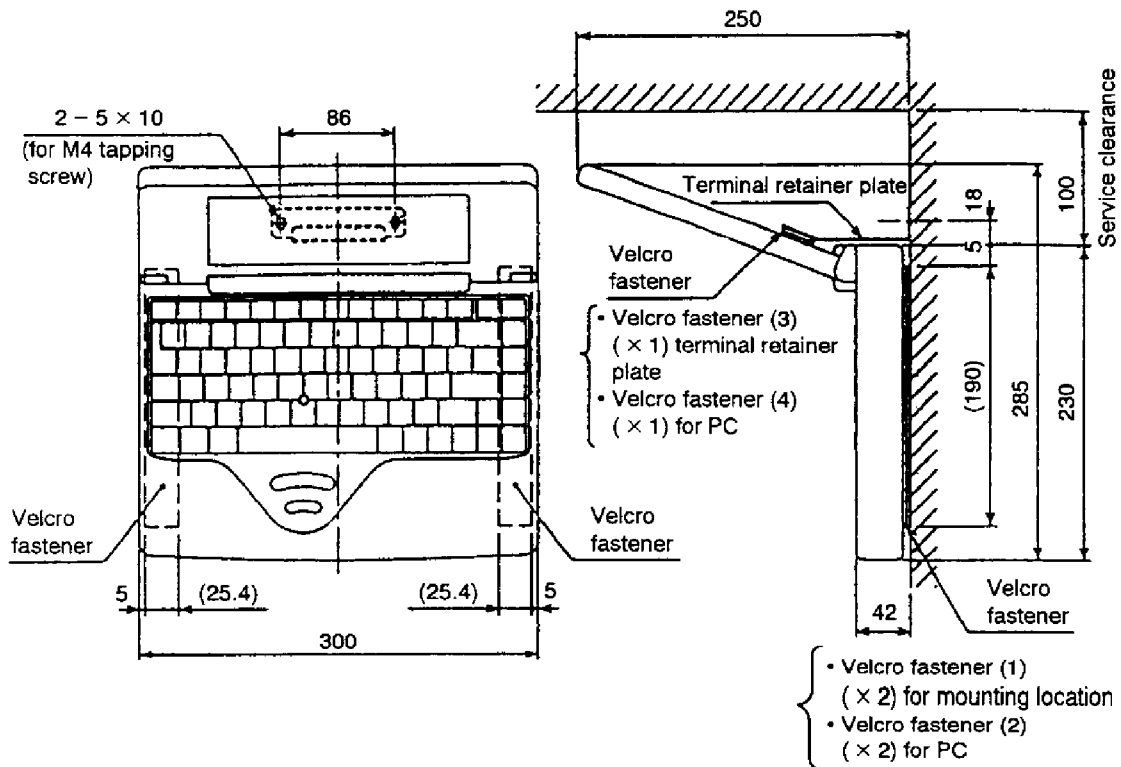
2.5 Terminal Unit (PC)

Mounting location

- Leave sufficient space around the unit to permit checking and maintenance.
- Locate the unit where temperature and humidity are stable and moderate.
- Locate the unit at least 5 meters from high power communications equipment and its feeder and antenna to prevent mutual interference.

Mounting the PC

1. Attach the velcro fasteners to the mounting location as shown in the drawing below.
2. Attach velcro fasteners to the underside of the PC. Lay the PC on the mounting location and press down firmly.
3. Adjust the display screen so it can be easily viewed. Position the terminal retainer plate as shown in the drawing below.
4. Fix the terminal retainer plate to the mounting location with two tapping screws (supplied).
5. Attach velcro fasteners to both the terminal retainer plate and PC as shown in the drawing below.



2.6 Printer

Fix to mounting location by the two mounting fixtures (supplied).

(Mounting dimensions for this unit are given in the printer outline drawing at the end of this manual.)

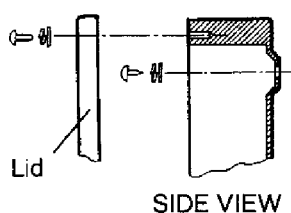
2.7 Junction Box IB-310

The usual mounting location is behind the Communication Unit on the bulkhead. It connects to the Communication Unit with a 1.5 meter cable. Keep this length in mind when selection a mounting location.

The terminal board is behind the lid at the top of the unit. Leave sufficient space at the top of the unit to both open the lid and access the terminal board.

To fix the unit, open the lid and fix the unit to the mounting location with four tapping screws.

- Compass Safe Distance: Standard ···· 1.1m
Steering ···· 0.9m



2.8 Junction Box IB-311

The Junction Box IB-311 functions to connect the Telex Distress Alert Button IB-350, Telephone Distress Button IB-360 and multiple telephones and facsimiles to the Communications Unit. A 1.5 meter cable connects it to the Communications Unit. The usual mounting location is behind the Communication Unit on a bulkhead. To fix the unit, open the lid and fix the unit to the mounting location with four tapping screws.

- Compass Safe Distance: Standard ···· 1.1m
Steering ···· 0.9m

2.9 Telex Distress Alert Button IB-350

For location away from communications room, install it where it can be easily seen. Fix it to the mounting location with tapping screws or wood screws.

This unit is available in two mounting types: flush mount or bulkhead mount. The location of the cable gland depends on unit; at the rear of the flush mount unit, or at the base of the bulkhead unit.

For mounting instructions see the outline drawing at the end of this manual.

2.10 Telephone Distress Button IB-360

This unit is physically identical to the IB-350. For mounting instructions see the outline drawing at the end of this manual.

Note that this unit does not transmit the distress alert but changes the communication priority to "DISTRESS". Therefore, it should be mounted near the No. 1 telephone.

2.11 Mounting of Optional Equipment

Received call unit IC-301

This device alerts shipboard personnel (by aural alarm) to incoming telephone calls and telex and facsimile messages. For location away from communications room, install it where it can be easily seen. Fix it to the mounting location with tapping screws or wood screws.

This unit is available in two mounting types: flush mount or bulkhead mount. The location of the cable gland depends on unit; at the rear of the flush mount unit, or at the base of the bulkhead unit.

Transformer unit

The transformer unit acts both as a stepdown transformer and insulator for ship's mains other than 100 VAC. The mounting location should be well ventilated and clean.

3. Wiring

This chapter provides the information necessary for wiring of units. The following lists units and location of wiring instructions.

	<u>Page</u>
1. Communication Unit IB-280	3-1
2. Junction Box IB-310.....	3-3
3. Junction Box IB-311.....	3-4
4. Telex Distress Alert Button IB-350	3-5
5. Telephone Distress Button IB-360	3-5
6. Antenna Unit IB-180	3-6
7. Terminal Unit (personal computer, Class 1 only)	3-8
8. Printer.....	3-8
9. Telephone	3-8

3.1 Communication Unit

General

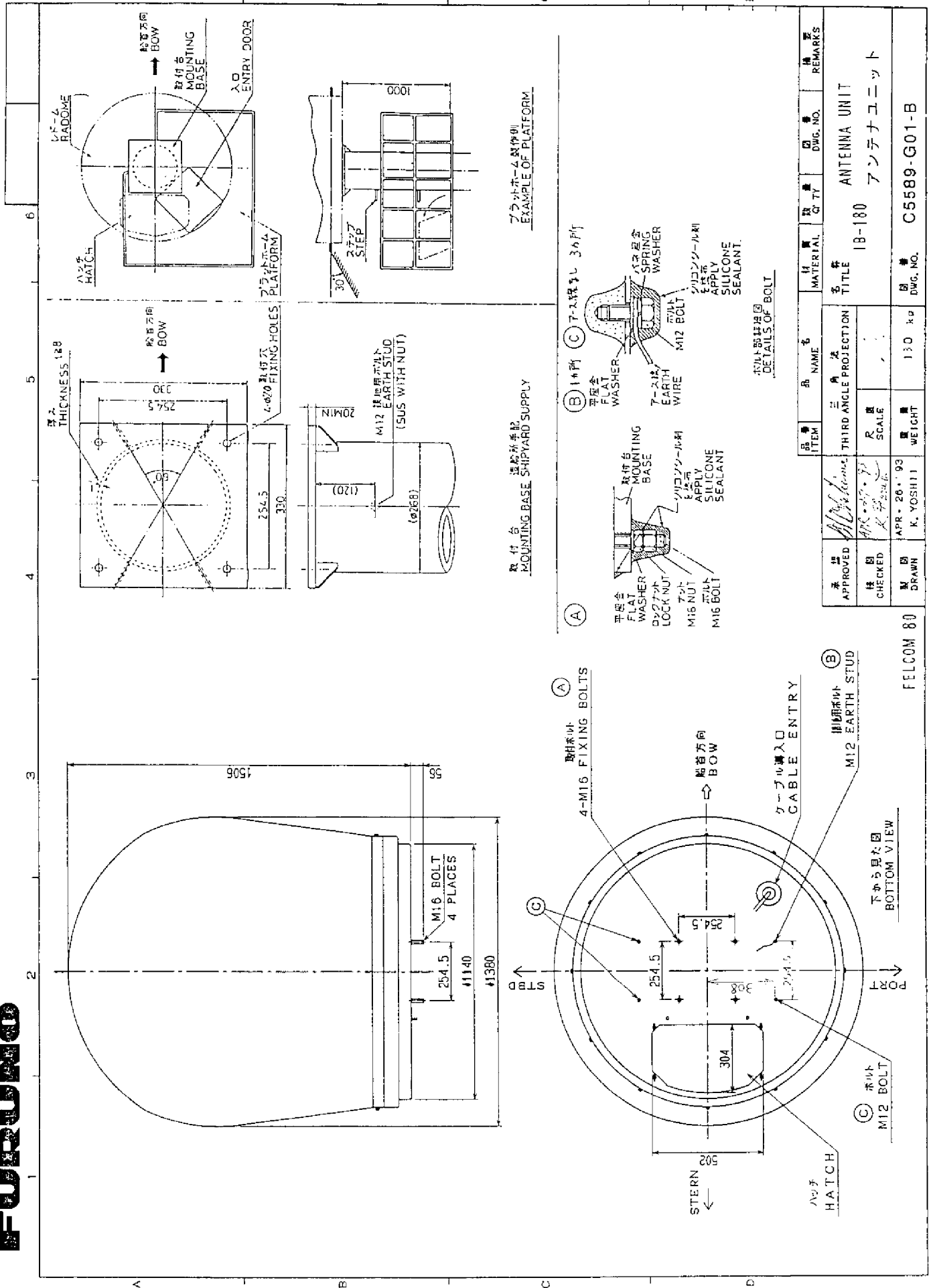
All units connect to the Communication Unit via the connectors on the rear of the unit. The connection cables of all units are fitted with a connector. Connect units to the Communication Unit referring to the drawing on the next page.

Ground

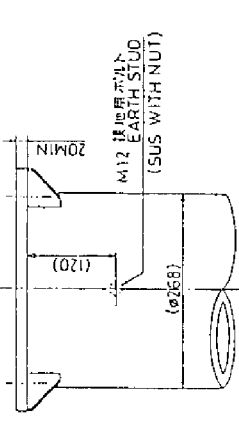
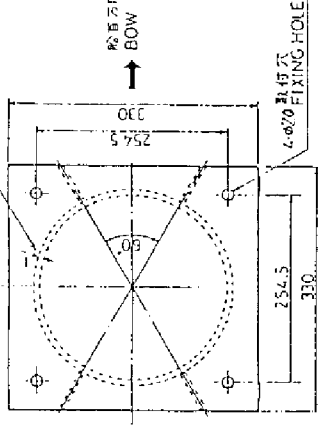
Ground the unit by using a copper strap.

List of Drawings

Drawing Name	Model	Drawing No.	Page
Outline Drawing			
Antenna Unit	IB-180	C5589-G01	D-1
Communication Unit	IB-280	C5589-G02	D-2
Terminal Unit (tabletop)	T-2110	C5589-G16	D-3
Telephone	FC622SL1WG	C5589-G04	D-4
Printer (tabletop)	PP-510	C5589-G08	D-5
Junction Box	IB-310	C5589-G06	D-6
Junction Box	IB-311	C5589-G07	D-7
Telex Distress Alert Button/ Telephone Distress Button	IB-350/IB-360	C5589-G12	D-8
Received Call Unit	IC-301	C5530-G05	D-9
Facsimile	PX-1	C5589-G14	D-10
Facsimile	PFX-50	C5589-G13	D-11
AC Adaptor	PA-2417U	C5589-G11	D-12
Transformer Unit	RU-1758/1803	C3003-001	D-13
Modular Jack Box (Flush type)	OP16-11	C5079-G01	D-14
Modular Jack Box (Exploded type)	OP16-10	C5079-G02	D-15
Modular Jack Box	OP16-8	C5079-G03	D-16
Card Reader	MCT-1540-55	C5589-G17	D-17
Interconnection Diagram			
Interconnection Diagram	FELCOM 80	C5589-C01	S-1
Connection of Additional TEL/FAX/Alert Units	FELCOM 80	C5589-C02	S-2
Interconnection of Card Reader	MCT-1540-55	C5589-C10	S-3
Schematic Diagram			
Antenna Unit	IB-180	C5589-K02	S-4
Communication Unit	IB-280	C5589-K01	S-5



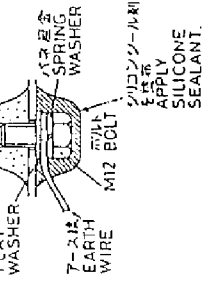
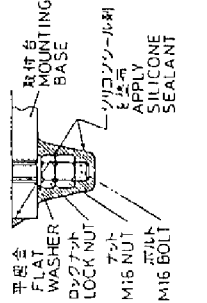
板厚 THICKNESS 1.8



プラットフォーム例 EXAMPLE OF PLATFORM

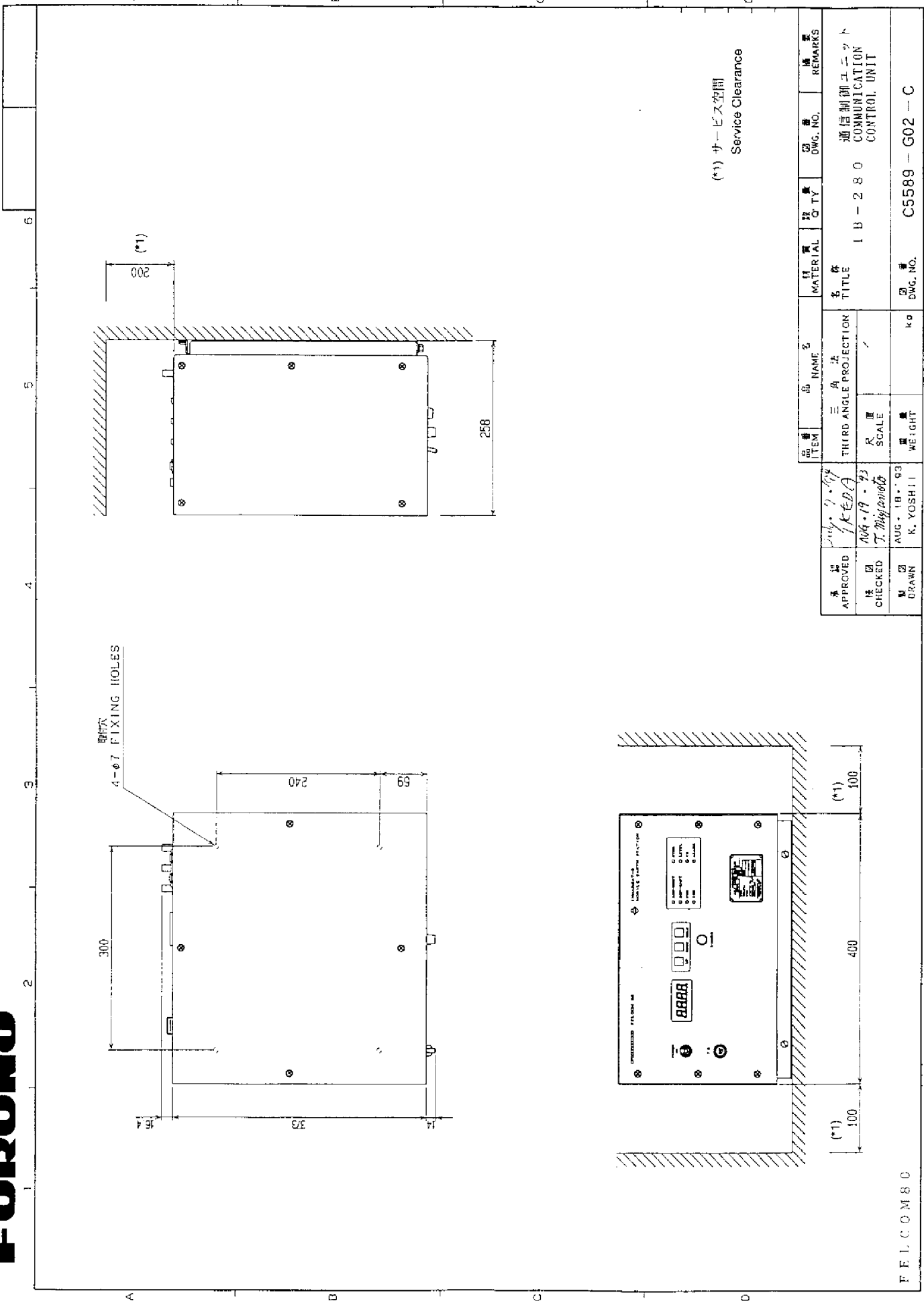
取付台 MOUNTING BASE

ボルト詳細図 DETAILS OF BOLT



承認 APPROVED	品名 ITEM NAME	材質 MATERIAL	数量 QTY	図番 DWG. NO.	備考 REMARKS
検閲 CHECKED	第三角法 THIRD ANGLE PROJECTION				
製図 DRAWN	R SCALE				
DATE APR-20-93	重量 WEIGHT				
DRAWN K. YOSHII	130 kg				
TITLE		ANTENNA UNIT			
DWG. NO.		18-180 アンテナユニット			
DWG. NO.		C5589-G01-B			

FELCOM 80



(*) サービス空間
Service Clearance

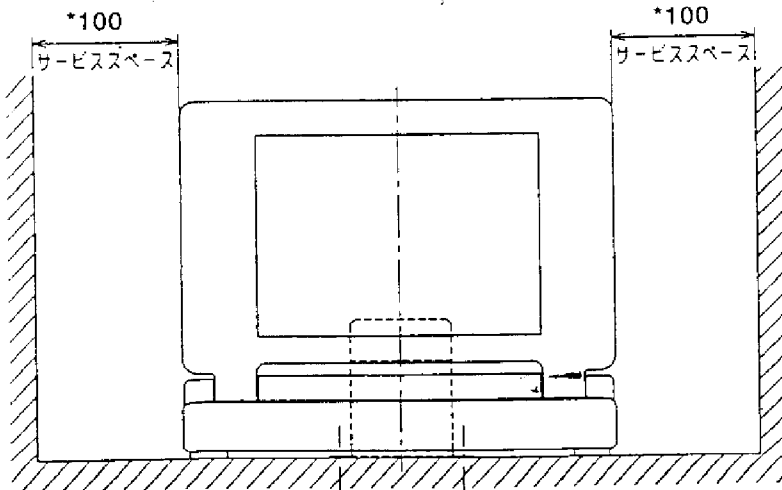
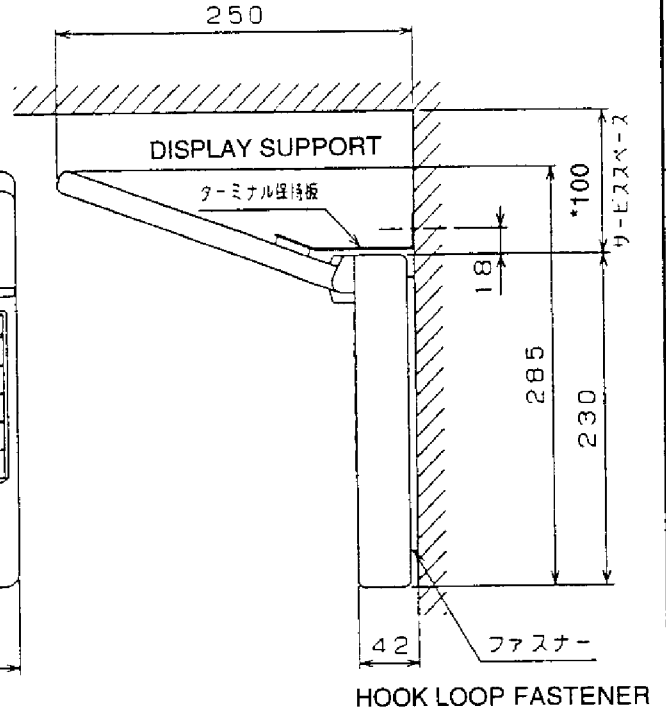
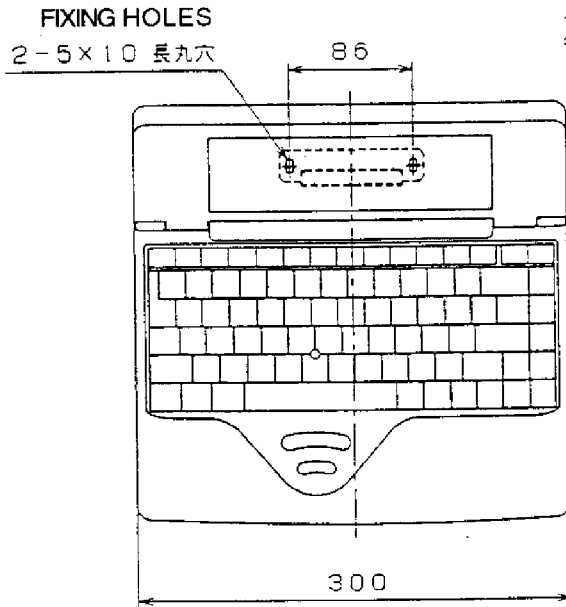
承認 APPROVED	品番 ITEM	品名 NAME	数量 QTY	材料 MATERIAL	図番 DWG. NO.	備考 REMARKS
検査 CHECKED	第三角法 THIRD ANGLE PROJECTION					
製図 DRAWN	R SCALE					
承認者 APPROVED: <i>K. YOSHII</i> 検査者 CHECKED: <i>T. Miyamoto</i> 製図者 DRAWN: <i>K. YOSHII</i>		品名 NAME: 通信制御ユニット COMMUNICATION CONTROL UNIT 図番 DWG. NO.: IB-280				
		重量 WEIGHT: kg	図番 DWG. NO.: C5589 - G02 - C			

A

B

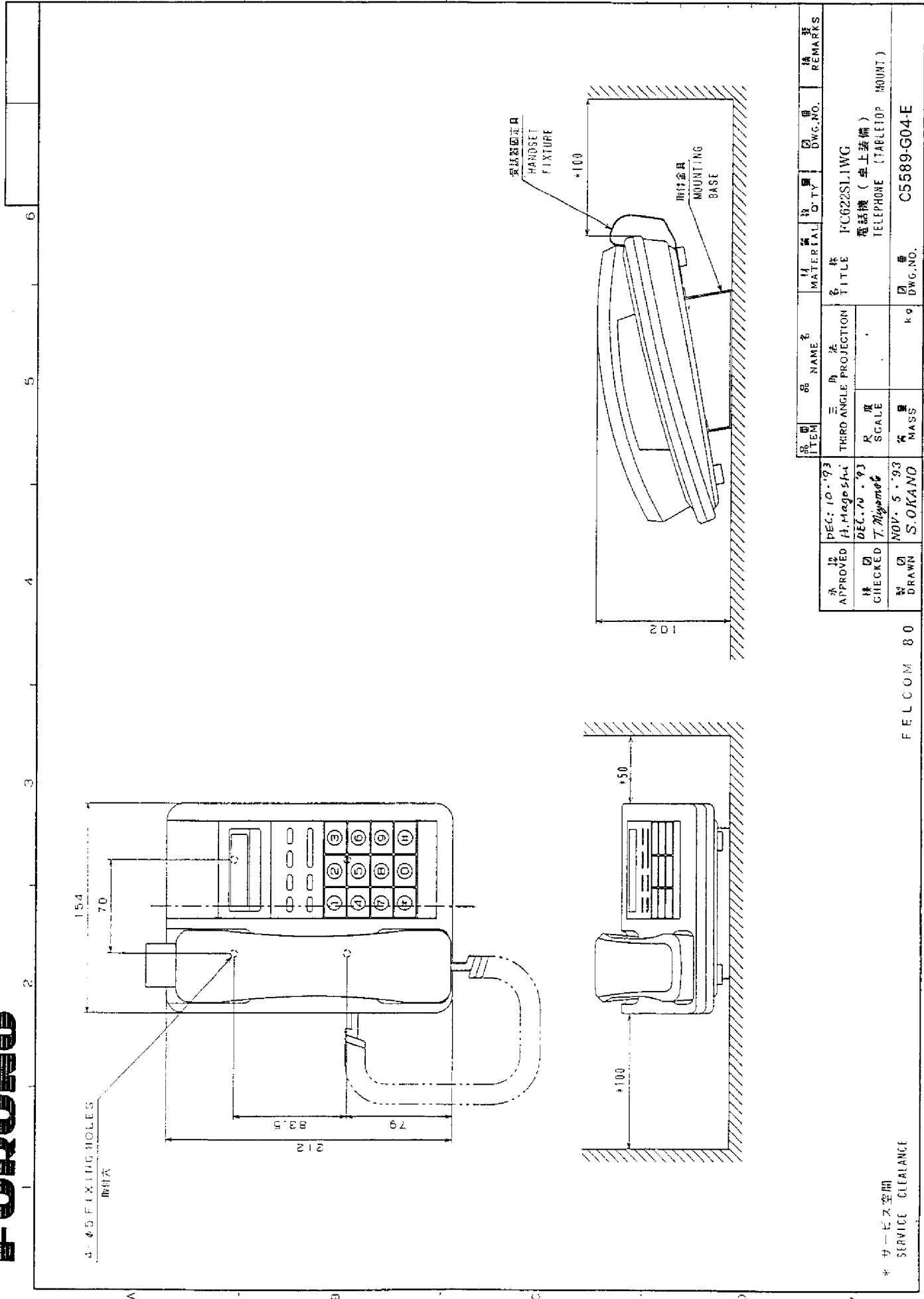
C

D



* RECOMMENDED SERVICE CLEARANCE

DRAWN Feb. 5 '97 T. YAMASAKI				TYPE T-2100/2110
CHECKED Feb. 18 '97 T. SHISHIDO				名称 ターミナルユニット (桌上装備)
APPROVED Feb. 18 '97 K. KUSUOKI		FELCOM-11 FELCOM-80		外寸図
SCALE 1/5	MASS 3.1 kg	APPLICABLE TO: (MODEL)	BLOCK NO.	NAME TERMINAL UNIT (TABLETOP MOUNT)
DWG NO. C5589-G16-B		16-007-6810- G0		OUTLINE DRAWING

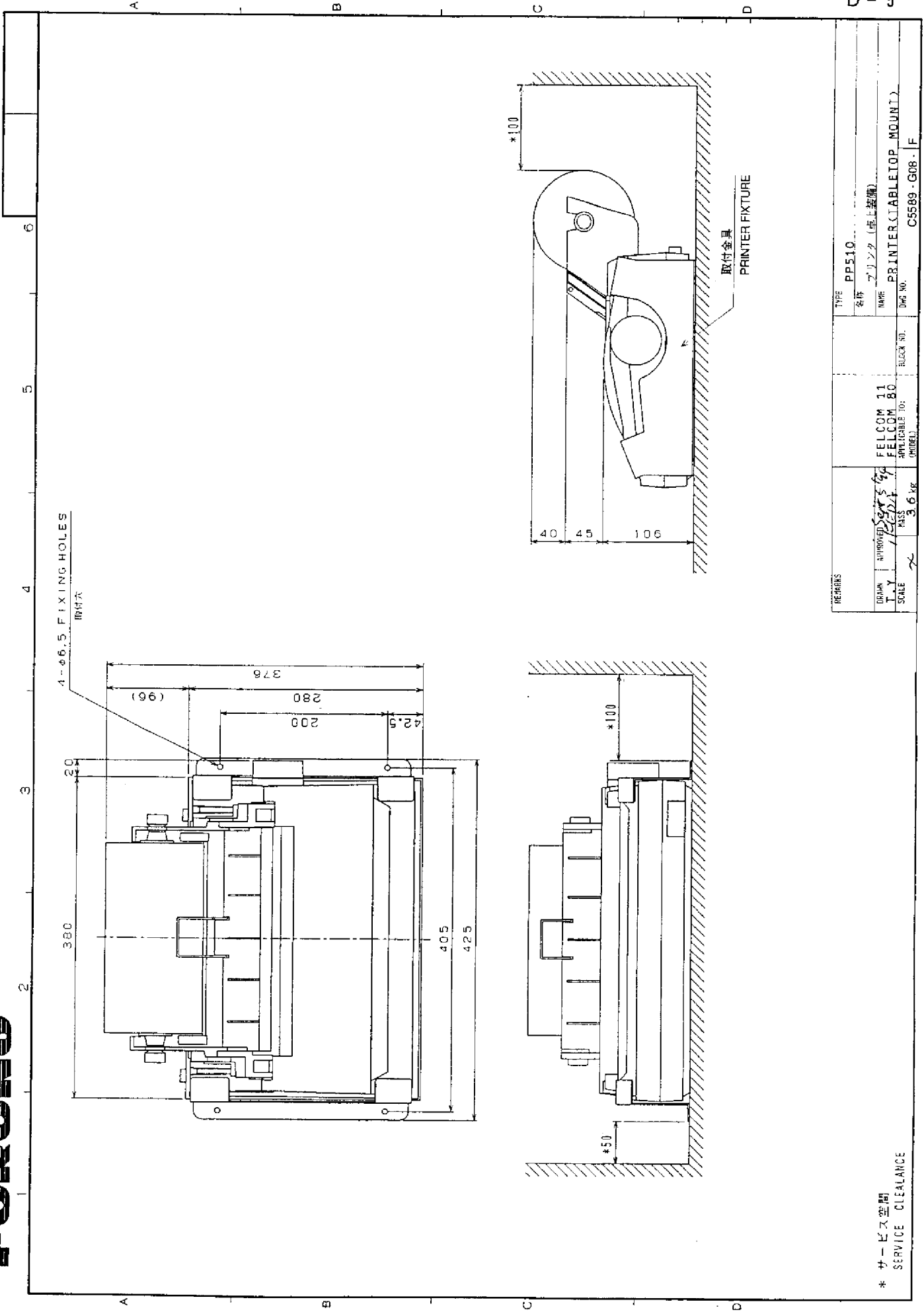


承認 APPROVED	PEC: 10-'93 H. Mageshi	品名 NAME	材料 MATERIAL	数量 Q'TY	図番 DWG. NO.	備考 REMARKS
検 CHECKED	DEC. 20-'93 T. Miyamoto	三 THIRD ANGLE	種 TYPE	種 TYPE	種 TYPE	種 TYPE
製 DRAWN	NOV. 5-'93 S. OKANO	法 PROJECTION	名 TITLE	名 TITLE	名 TITLE	名 TITLE
		尺 SCALE	種 TYPE	種 TYPE	種 TYPE	種 TYPE
		重 MASS	種 TYPE	種 TYPE	種 TYPE	種 TYPE

* サービス空間
SERVICE CLEARANCE

F E L C O M 8 0

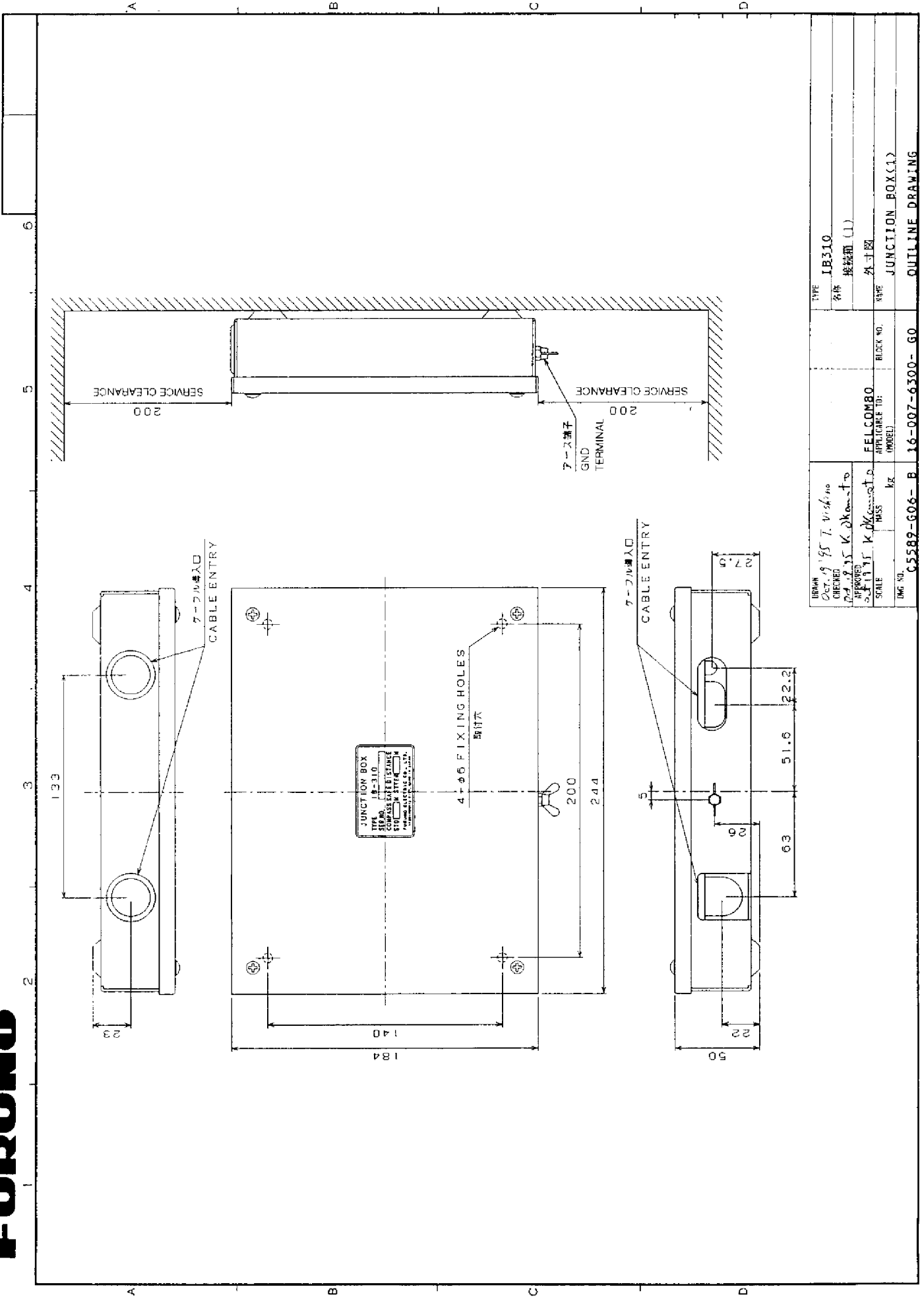
C5589-G04-E



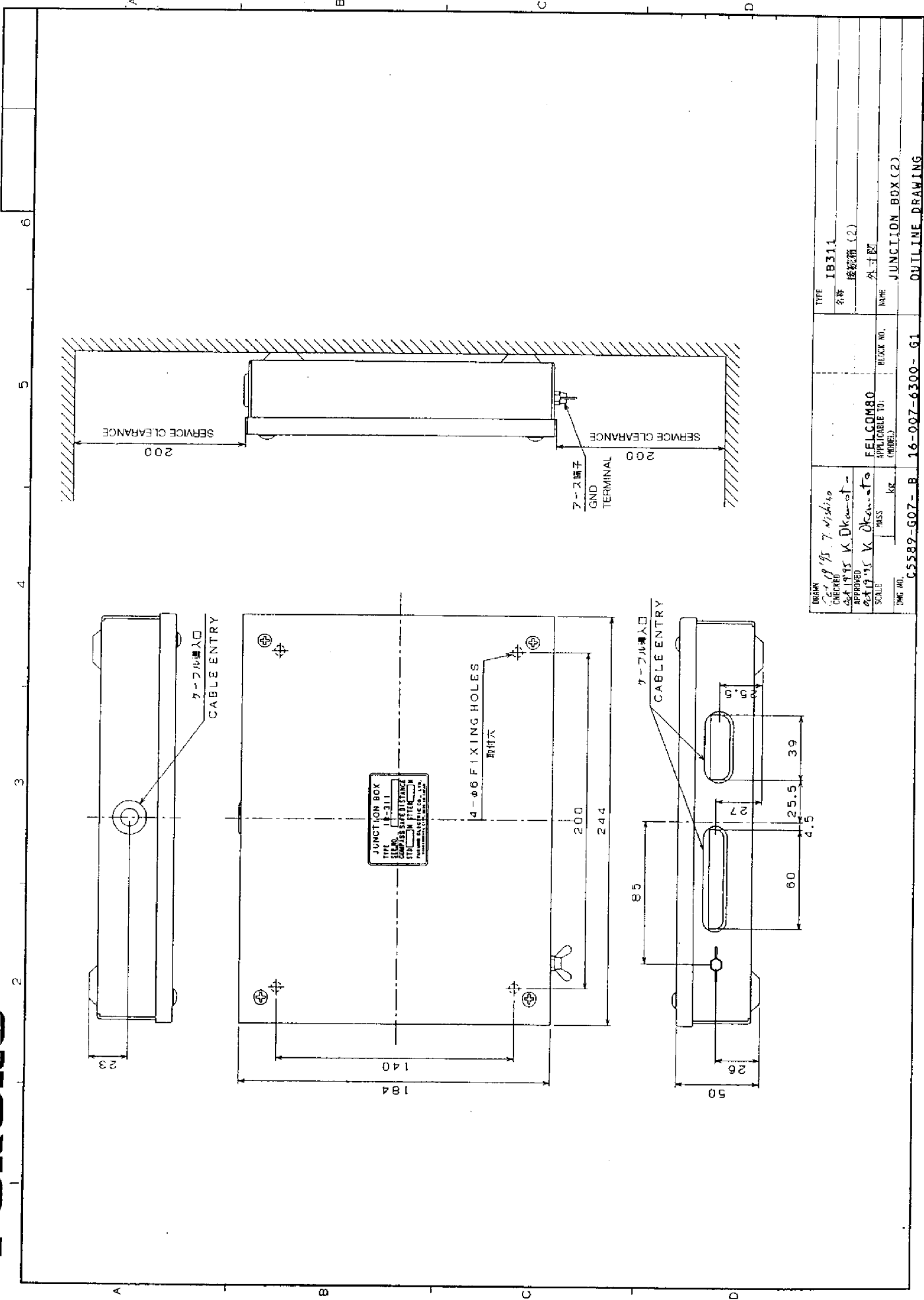
REMARKS	TYPE	PP510
	名称	プリンタ (卓上型)
	仕様	PRINTER (TABLETOP MOUNT)
	図号	C5589-G08-1F
	BLOCK NO.	
	APPLICABLE TO:	FELCOM 11 FELCOM 80
	SCALE	1/20 (OTHER)
	重量	3.6 kg

FURUNO ELECTRIC CO., LTD.

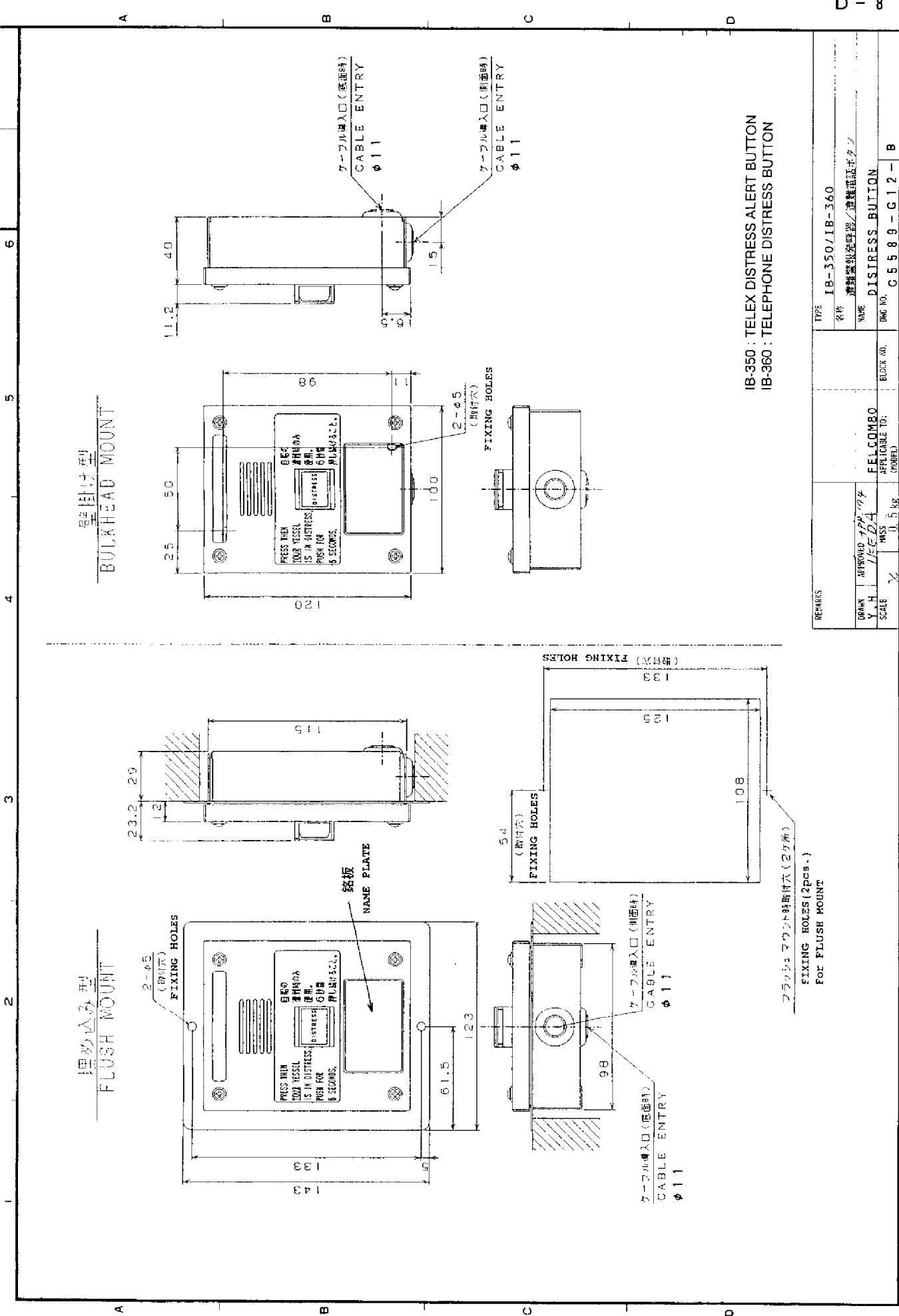
* サービス空間
SERVICE CLEARANCE



DRAWN Oct. 19 1957 T. V. S. H. no CHECKED 20. 19 57 K. Okamoto APPROVED 20. 19 57 K. Okamoto SCALE MASS kg Dwg. No.	TYPE IB-310 名称 接続箱 (1) 丸仕図 JUNCTION BOX(1)	FELCOMBO APPLICABLE TO: (MODEL)	BLOCK NO. 16-007-6300-60 16-007-6300-60 OUTLINE DRAWING
---	---	---------------------------------------	--



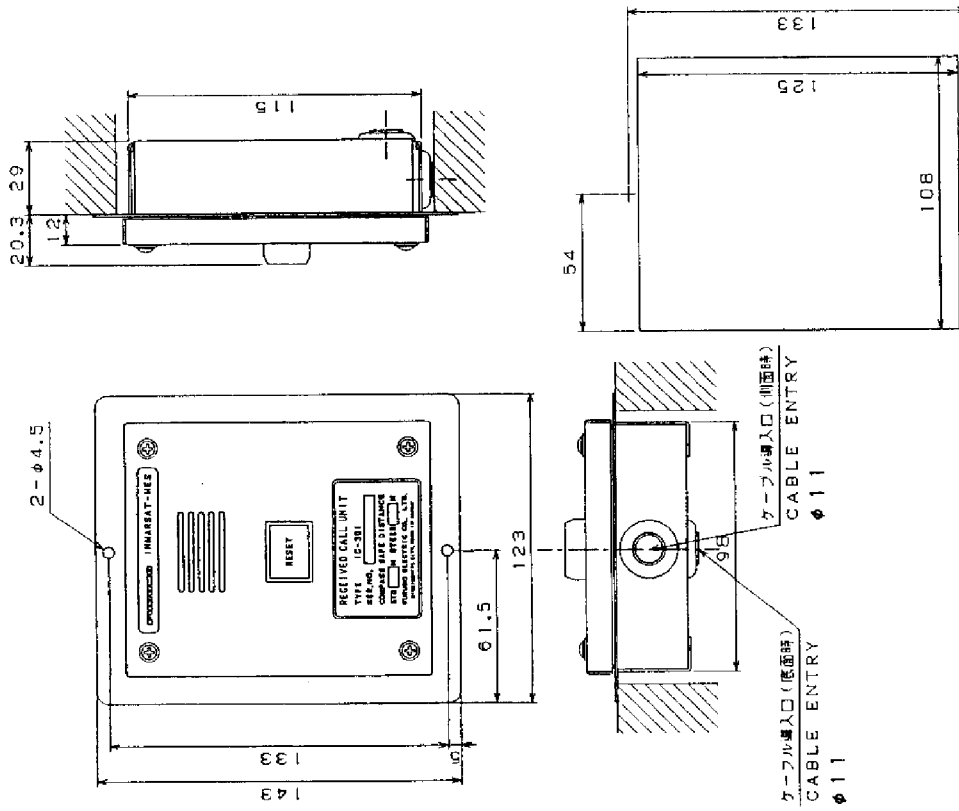
DRAWN CHECKED APPROVED SCALE PMC NO.	DATE 1975.7.14 DESIGNED BY K. Okamoto DRAWN BY Y. Okamoto	TYPE IB311 名称 接続箱 (2) 外寸図	BLOCK NO. FELCOM80 APPLICABLE TO: (MODEL)	DATE JUNCTION BOX (2)	OUTLINE DRAWING
C5582-607-B		16-007-6300-61		FURUNO ELECTRIC CO. LTD.	



IB-350 : TELEX DISTRESS ALERT BUTTON
 IB-360 : TELEPHONE DISTRESS BUTTON

REPAIRS		TYPE	IB-350/IB-360
DRAWN		名称	無線警報装置/通報電話ボタン
Y. H.		NAME	DISRESS_BUTTON
SCALE		DWG. NO.	G 5 8 9 - G 1 2 - B
APPLICABLE TO:		BLOCK NO.	
FELCOM80			
SCALE 1:5 KR			

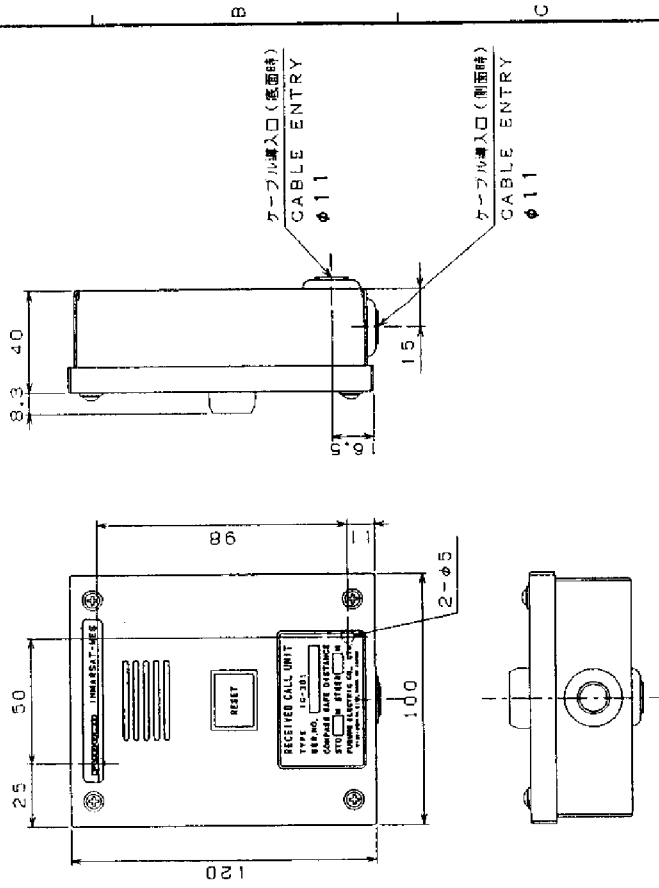
埋め込み型
FLUSH MOUNT



フラッシュマウント時取付穴 (2ヶ所)
FIXING HOLES (2 PCS.) FOR FLUSH MOUNT

取付付穴
PANEL CUTOUT

壁掛け型
BULKHEAD MOUNT



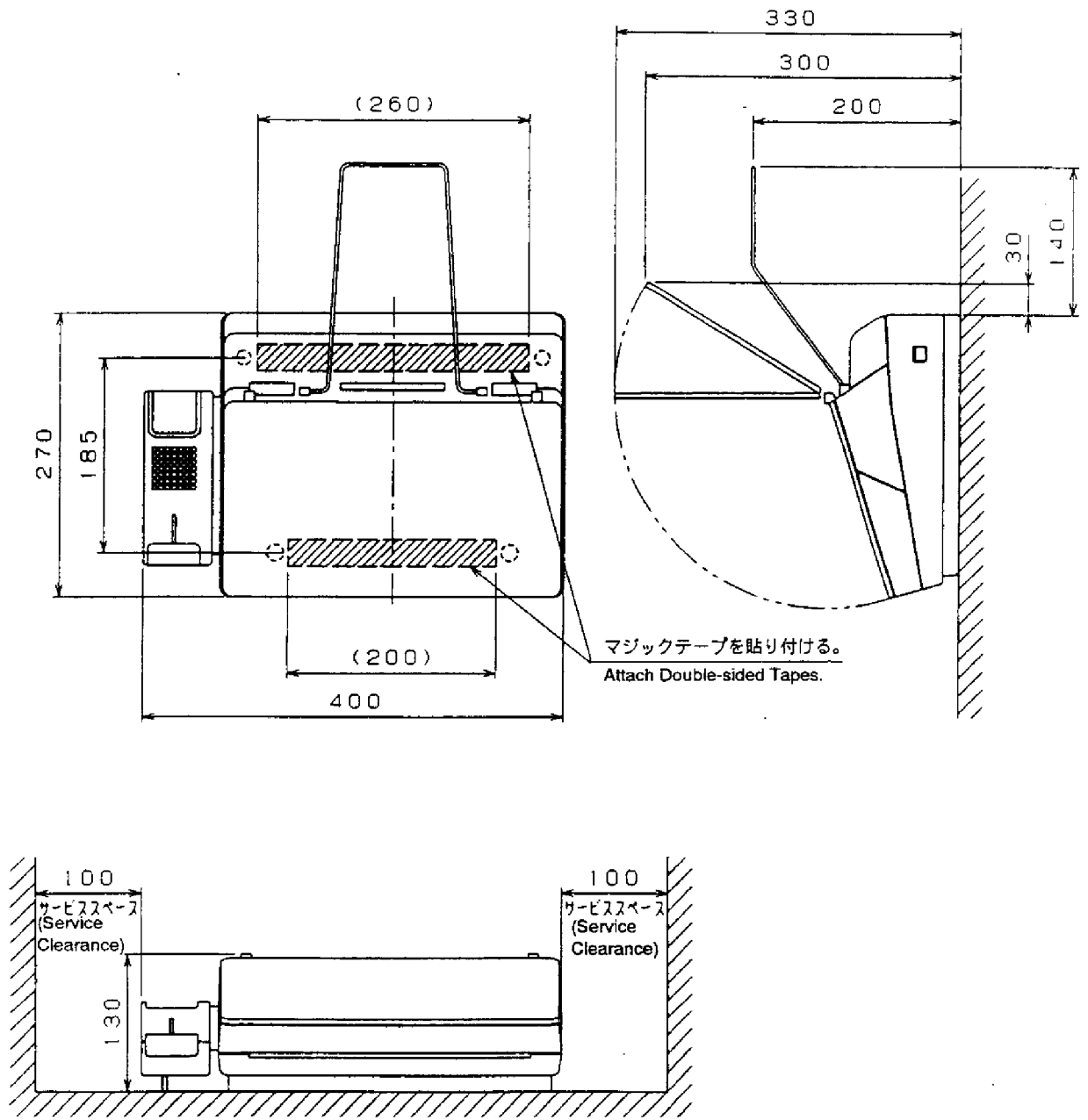
REMARKS		TYPE	IC-301
DRAWN		名称	受信指示器
T.M.N		WHTE	RECEIVED CALL UNIT
SCALE		BLOCK NO.	C5530-G05-E
X		MASS	0.5 kg
		APPROVED	
		APPL. CABLE TO:	
		(MODEL)	

A

B

C

D



FELCOM 80

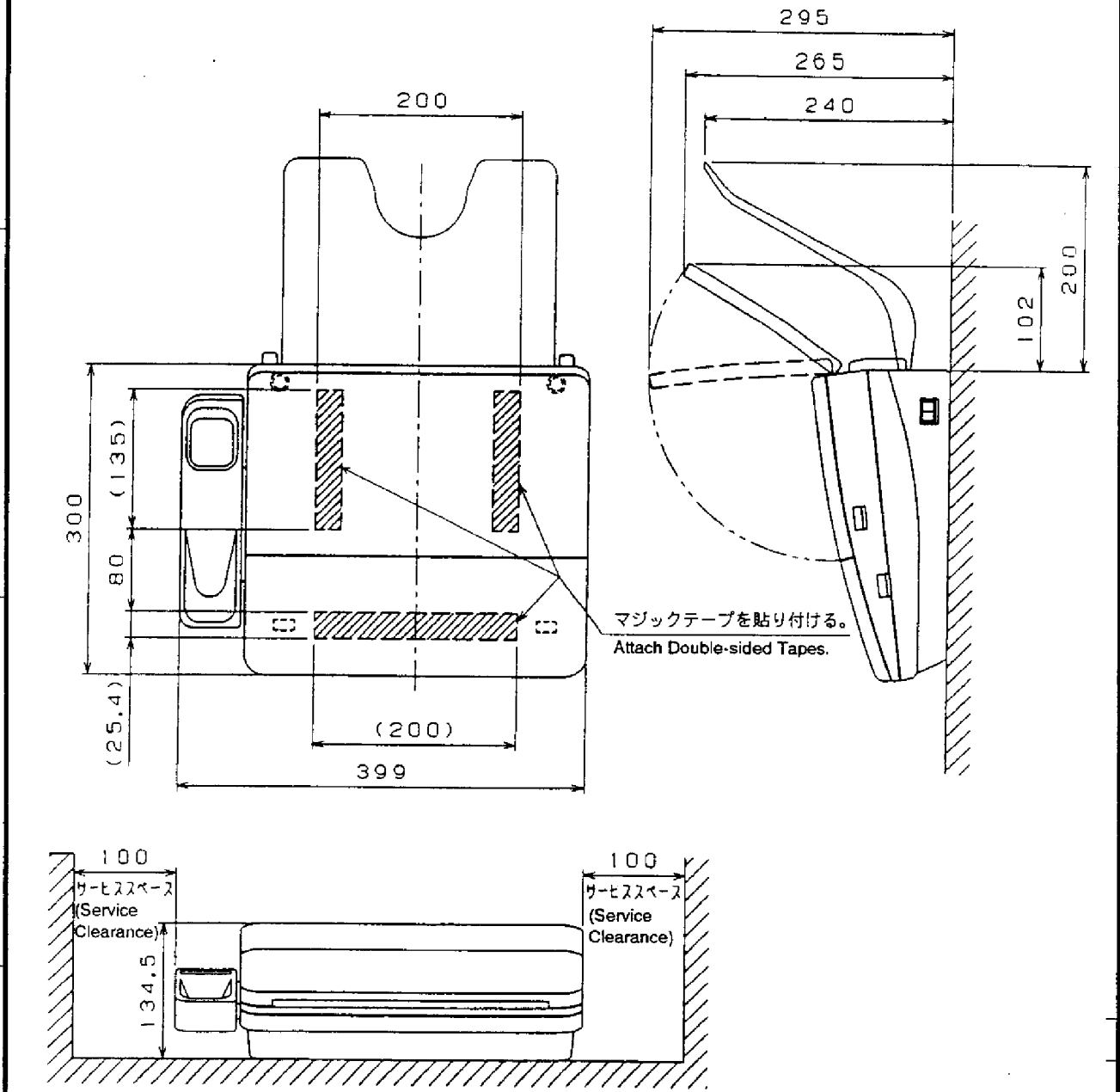
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
承認 APPROVED	Dec. 16 '94 M. IKEDA	三角法 THIRD ANGLE	名称 TITLE	PX-1 ファクシミリ FACSIMILE	
検図 CHECKED	Dec. 16 '94 T. SAITO	尺度 SCALE	1/6		
製図 DRAWN	Dec. 16 '94 Y. HAMANO	質量 MASS	5 kg		

A

B

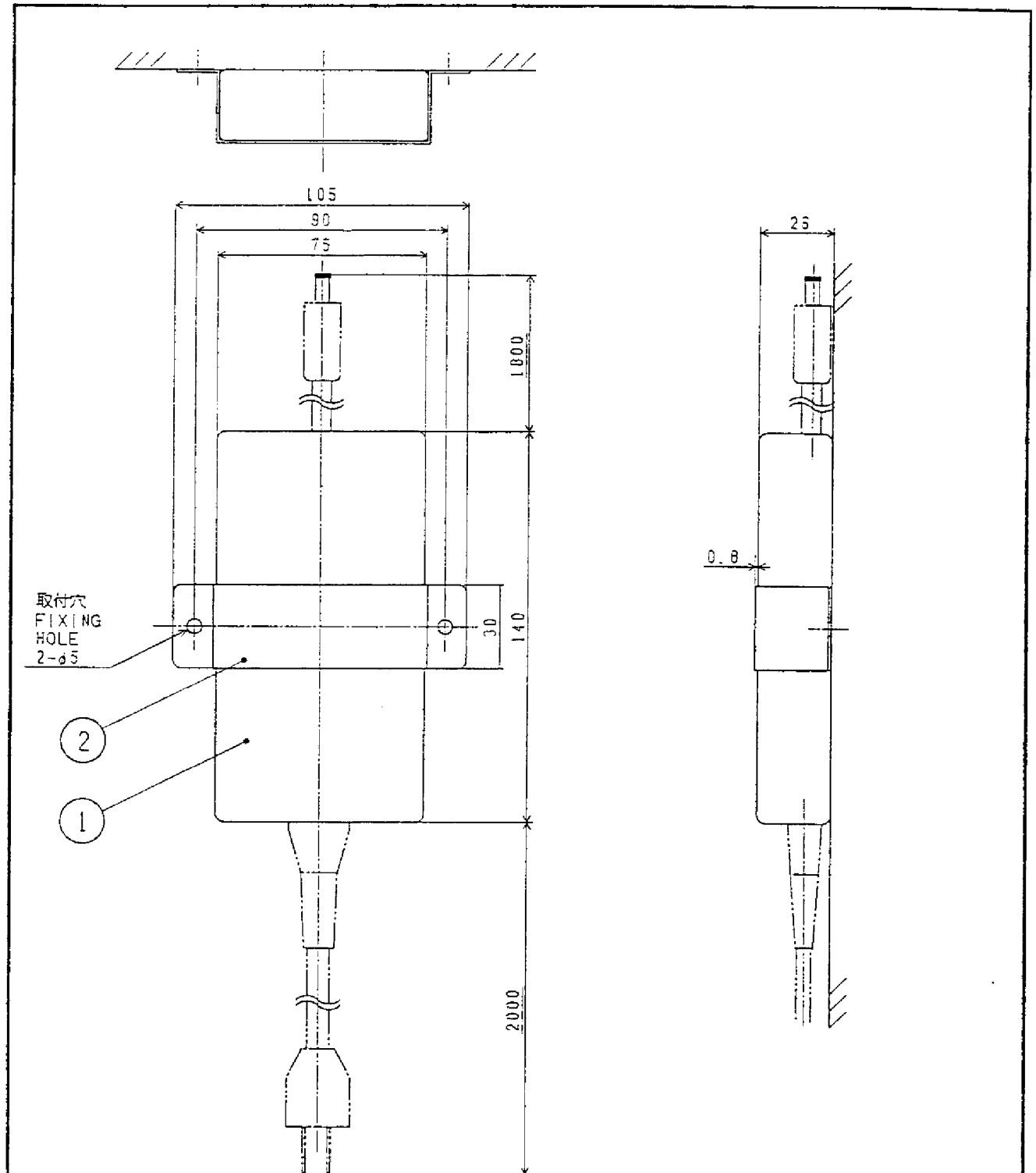
C

D

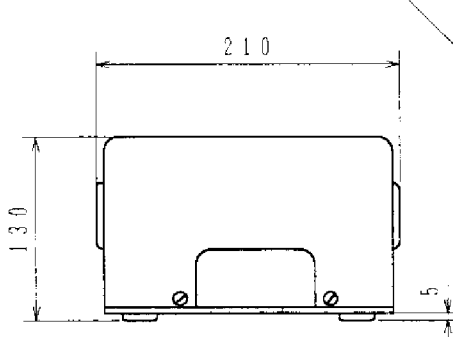
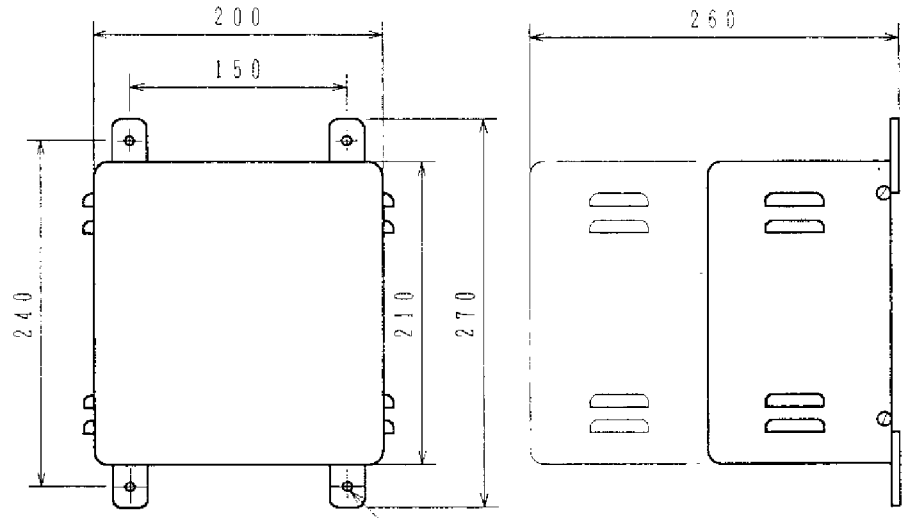


FELCOM 80

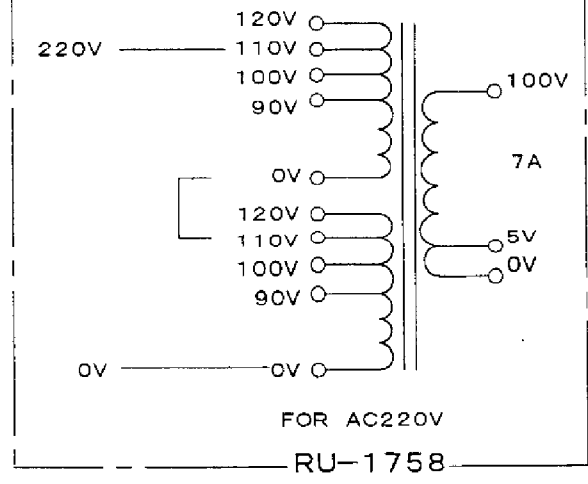
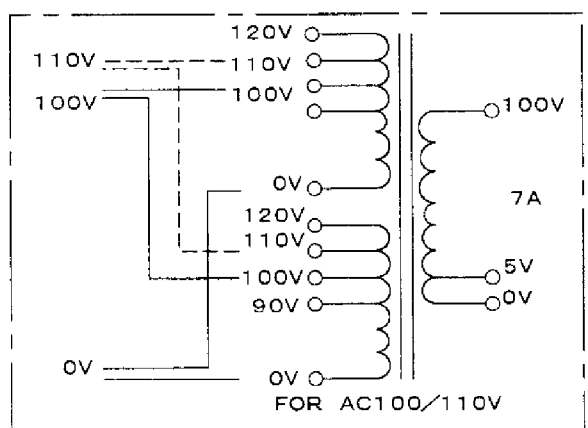
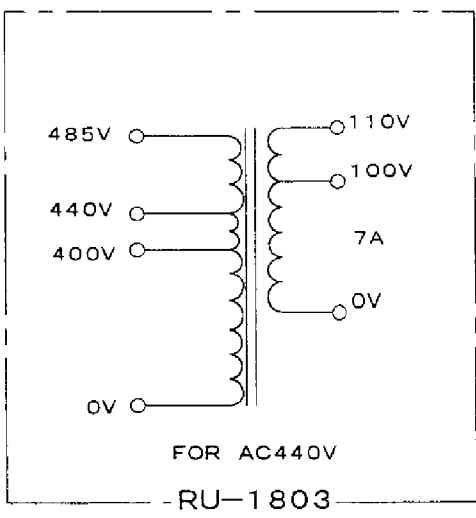
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
承認 APPROVED	Dec. 16 '94 M. IKEDA	三角法 THIRD ANGLE		名称 TITLE	PFX-50 ファクシミリ FACSIMILE
検図 CHECKED	Dec. 16 '94 T. SAITO	尺度 SCALE	1/6	図番 DWG. NO.	
製図 DRAWN	Dec. 16 '94 Y. HAMANO	質量 MASS	8 kg	C5589-G13-A	



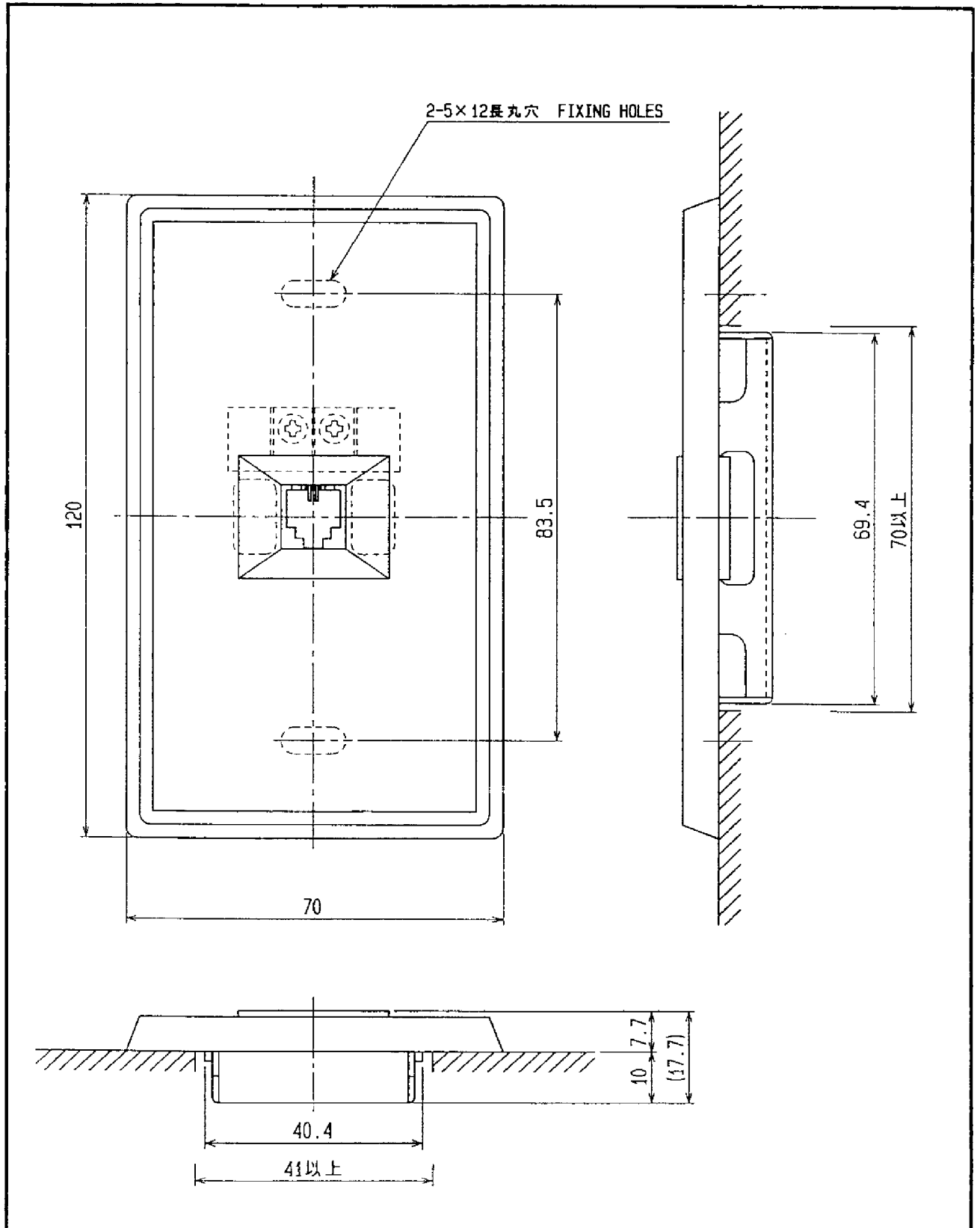
2	ACアダプター 押え板 AC ADAPTOR FIXING BAND	SPCC	1	16-007-6803	
1	ACアダプター AC ADAPTOR		1	PA2417U	
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	備考 REMARKS
承認 APPROVED	Dec. 07, '93 K. Ota	三角法 THIRD ANGLE PROJECTION		名称 TITLE	PA2417U ACアダプター AC ADAPTOR (100-240VAC TO 18VDC)
検図 CHECKED	Dec. 07, '93 K. Kusunoki	尺度 SCALE	1/2	図番 DWG. NO.	
製図 DRAWN	Dec. 07, '93 H. Yoshioka	質量 WEIGHT	1kg	C5589-G11-A	



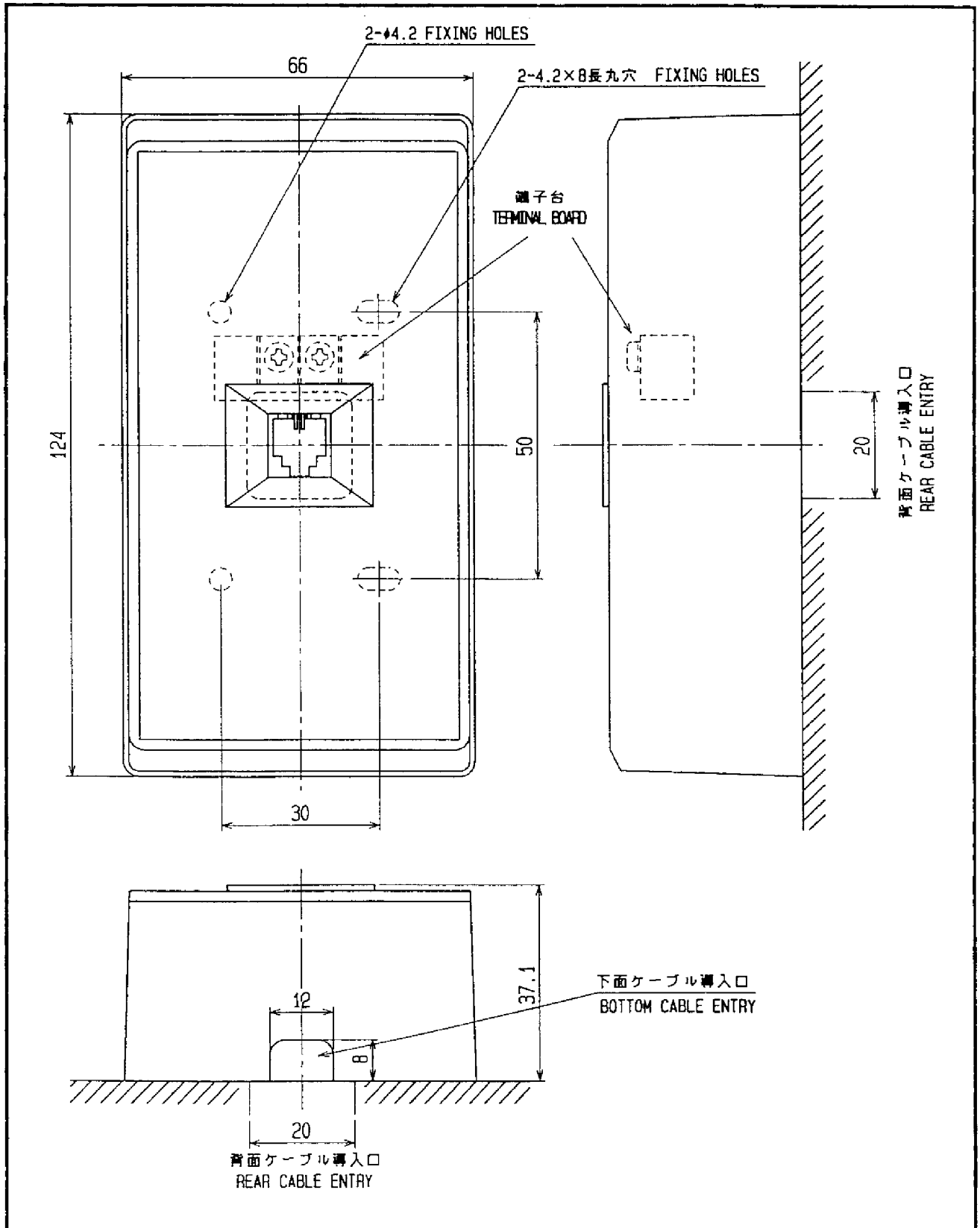
取付穴
4-7φ FIXING HOLES



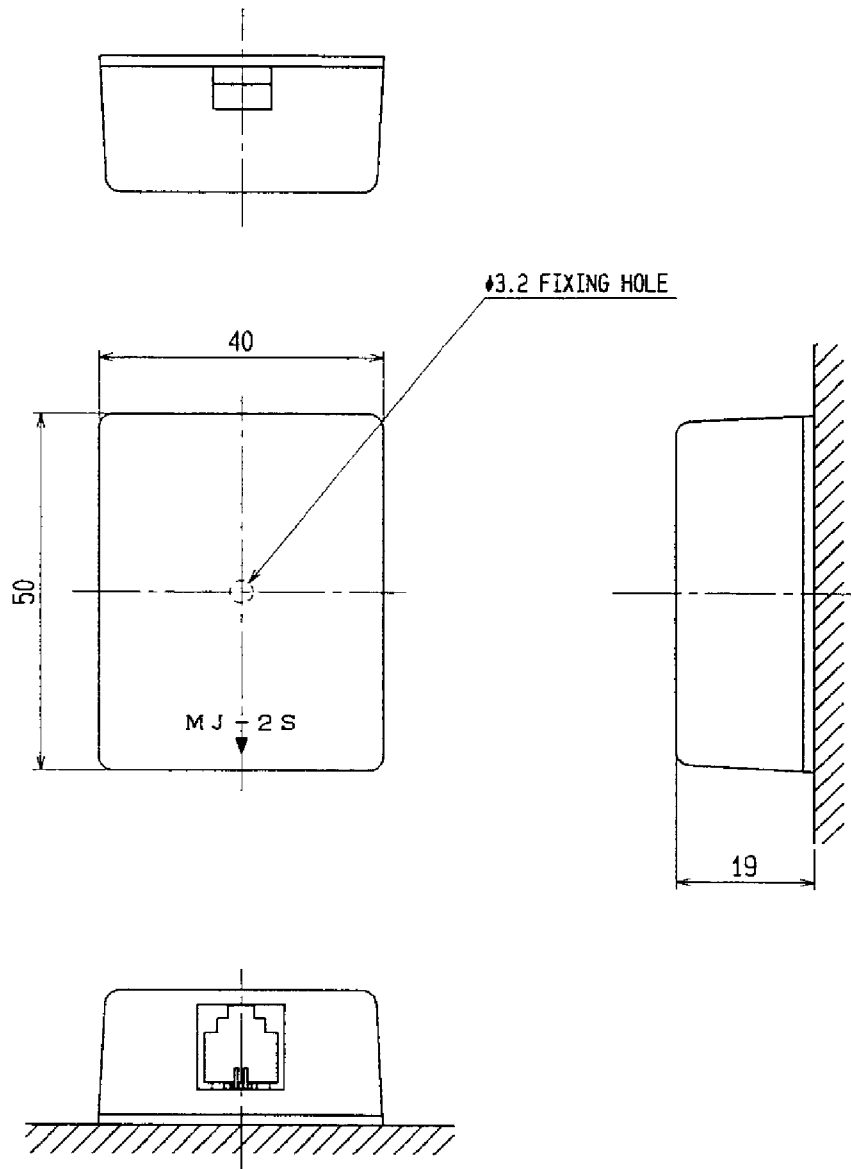
DRAWN June 18 '96 Y. EBISU CHECKED June 18 '96 K. Kusunoki APPROVED June 18 '96 K. VTA	TITLE RU-1758/1803 名称 トランスユニット 外寸図 NAME TRANSFORMER UNIT
SCALE 1/5 MASS 12 kg	DWGNo. C3003-001-D



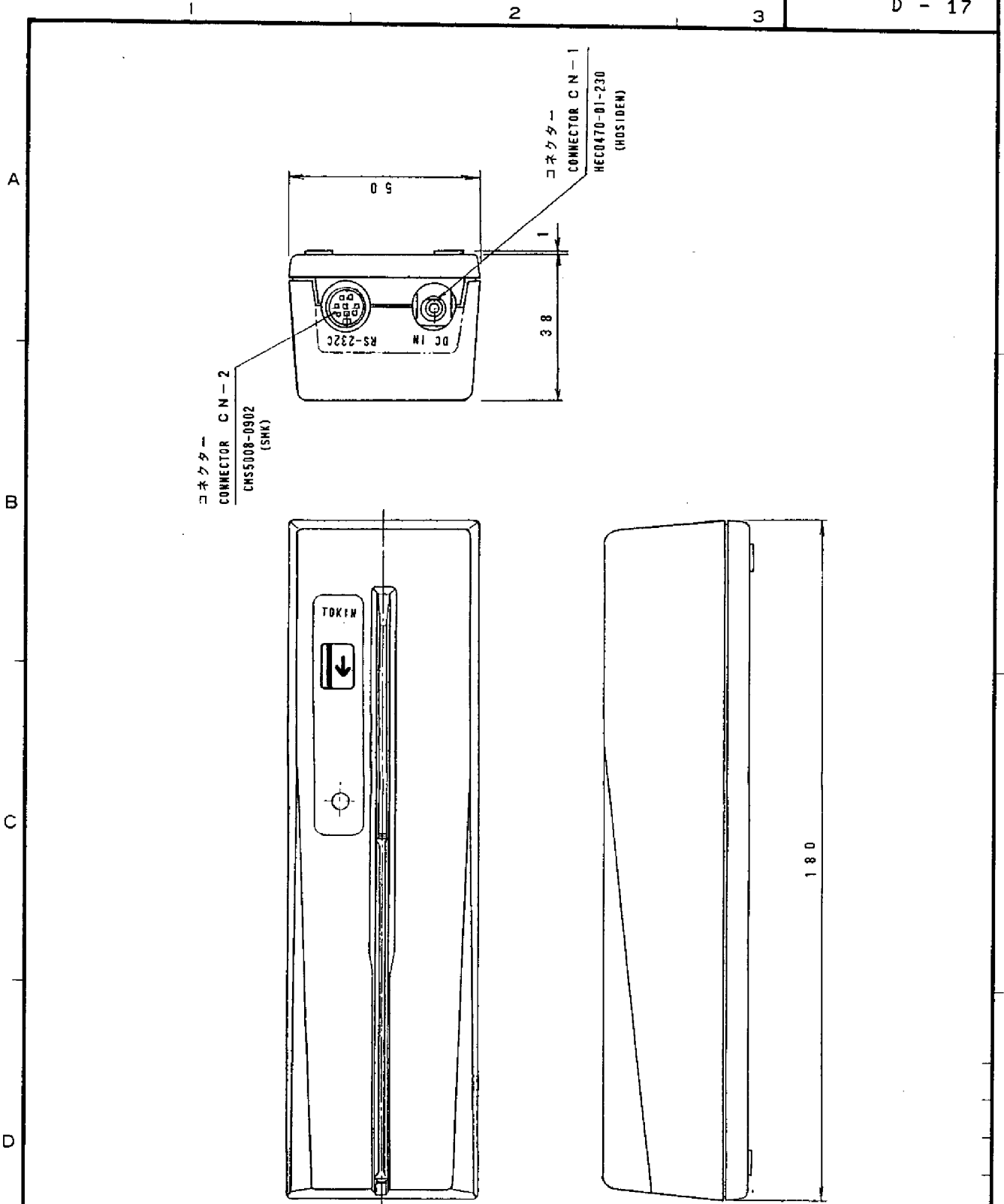
品番 ITEM	品名 NAME	材質 MATERIAL	数量 QTY	図番 DWG. NO.	適要 REMARKS
承認 APPROVED	Nov. 26, '93 K. Ota	三角法 THIRD ANGLE PROJECTION	名称 TITLE	OP16-11 (BJ-2W)	
検図 CHECKED	Nov. 26, '93 K. Kusunoki	尺度 SCALE	埋込みローゼット MODULAR JACK BOX (FLUSH TYPE)		
製図 DRAWN		質量 WEIGHT	0.1kg	図番 DWG. NO.	C5079-G01-C



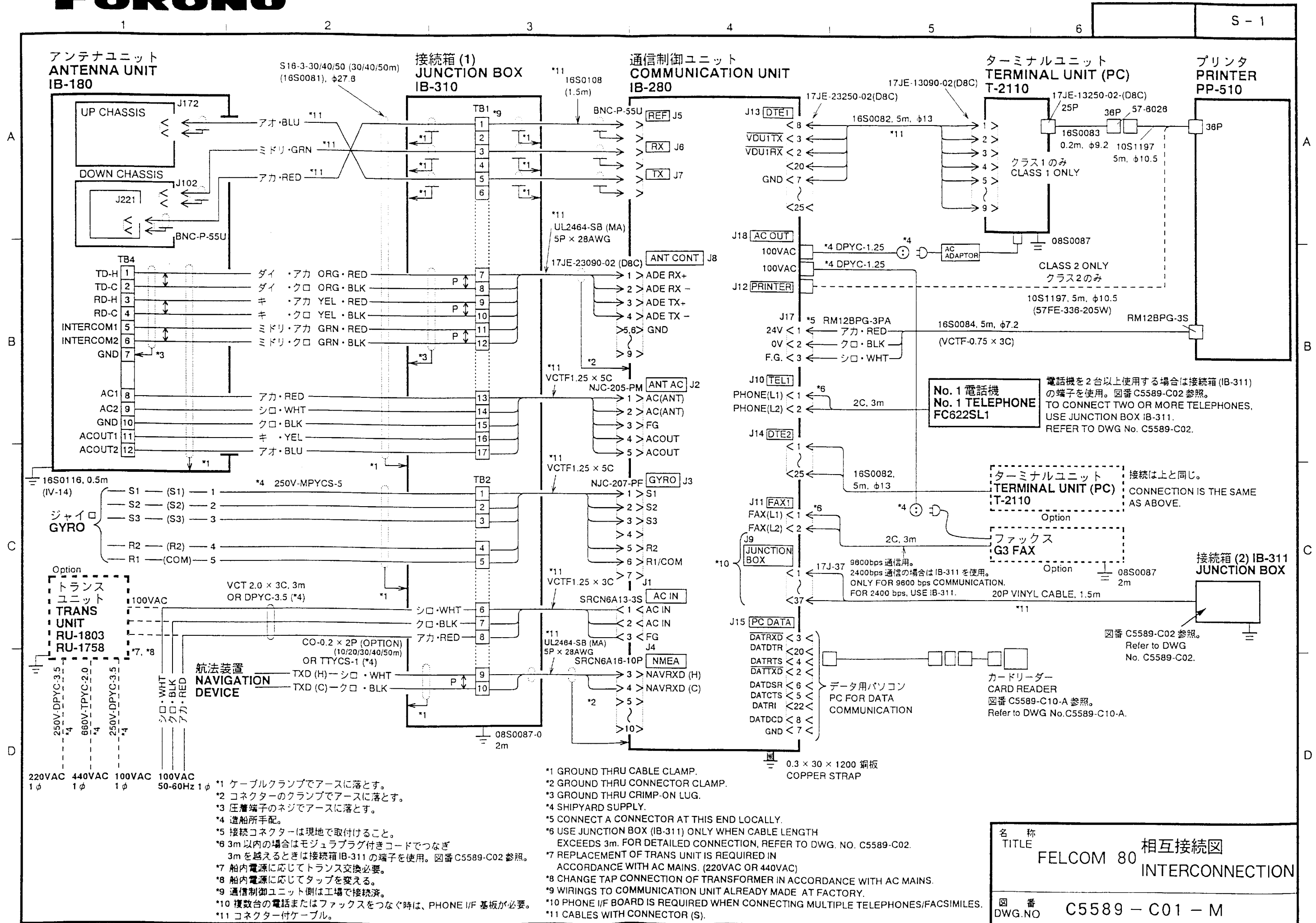
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	適要 REMARKS
承認 APPROVED	Nov. 26, '93 K. Ota	三角法 THIRD ANGLE PROJECTION		名称 TITLE OP16-10 (BJ-2W/WV7111Y) ボックスローゼット MODULAR JACK BOX (EXPOSED TYPE)	
検 CHECKED	Nov. 26, '93 K. Kusunoki	尺度 SCALE	/		
製 DRAWN		質量 WEIGHT	0.2kg	図番 DWG. NO.	C5079-G02-C



品番 ITEM	品名 NAME	材質 MATERIAL	数量 QTY	図番 DWG. NO.	備要 REMARKS
承認 APPROVED	Nov. 26, '93 K. Ota	三角法 THIRD ANGLE PROJECTION		名称 OP16-8/OP16-13 (MJ2S) TITLE	
校図 CHECKED	Nov. 26, '93 K. Kusunoki	尺度 SCALE	/	ローゼット MODULAR JACK BOX	
製図 DRAWN		質量 WEIGHT	0.05kg	図番 DWG. NO.	C5079-G03-C



DRAWN Jan. 8 '96 Y. EBISU				TYPE	MCT-1540-55
CHECKED Jan 10 '96 K. Kusunoki				名称	カードリーダー
APPROVED Jan 12 '96 K. ITO		FELCOM80			外寸図
SCALE	MASS	APPLICABLE TO: (MODEL)	BLOCK NO.	NAME	CARD READER
	0.17 kg				OUTLINE DRAWING
DWG NO. C5589-G17- A					



- *1 ケーブルクランプでアースに落とす。
- *2 コネクタのクランプでアースに落とす。
- *3 圧着端子のネジでアースに落とす。
- *4 造船所手配。
- *5 接続コネクタは現地で取付けること。
- *6 3m以内の場合はモジュラプラグ付きコードでつなぎ、3mを越えるときは接続箱IB-311の端子を使用。図番C5589-C02参照。
- *7 船内電源に応じてトランス交換必要。
- *8 船内電源に応じてタップを変える。
- *9 通信制御ユニット側は工場接続済。
- *10 複数台の電話またはファックスをつなぐ時は、PHONE I/F 基板が必要。
- *11 コネクター付ケーブル。

- *1 GROUND THRU CABLE CLAMP.
- *2 GROUND THRU CONNECTOR CLAMP.
- *3 GROUND THRU CRIMP-ON LUG.
- *4 SHIPYARD SUPPLY.
- *5 CONNECT A CONNECTOR AT THIS END LOCALLY.
- *6 USE JUNCTION BOX (IB-311) ONLY WHEN CABLE LENGTH EXCEEDS 3m. FOR DETAILED CONNECTION, REFER TO DWG. NO. C5589-C02.
- *7 REPLACEMENT OF TRANS UNIT IS REQUIRED IN ACCORDANCE WITH AC MAINS. (220VAC OR 440VAC)
- *8 CHANGE TAP CONNECTION OF TRANSFORMER IN ACCORDANCE WITH AC MAINS.
- *9 WIRINGS TO COMMUNICATION UNIT ALREADY MADE AT FACTORY.
- *10 PHONE I/F BOARD IS REQUIRED WHEN CONNECTING MULTIPLE TELEPHONES/FACSIMILES.
- *11 CABLES WITH CONNECTOR (S).

名称
TITLE
FELCOM 80 相互接続図
INTERCONNECTION

図番
DWG.NO
C5589-C01-M

通信制御ユニット IB-280 COMMUNICATION UNIT

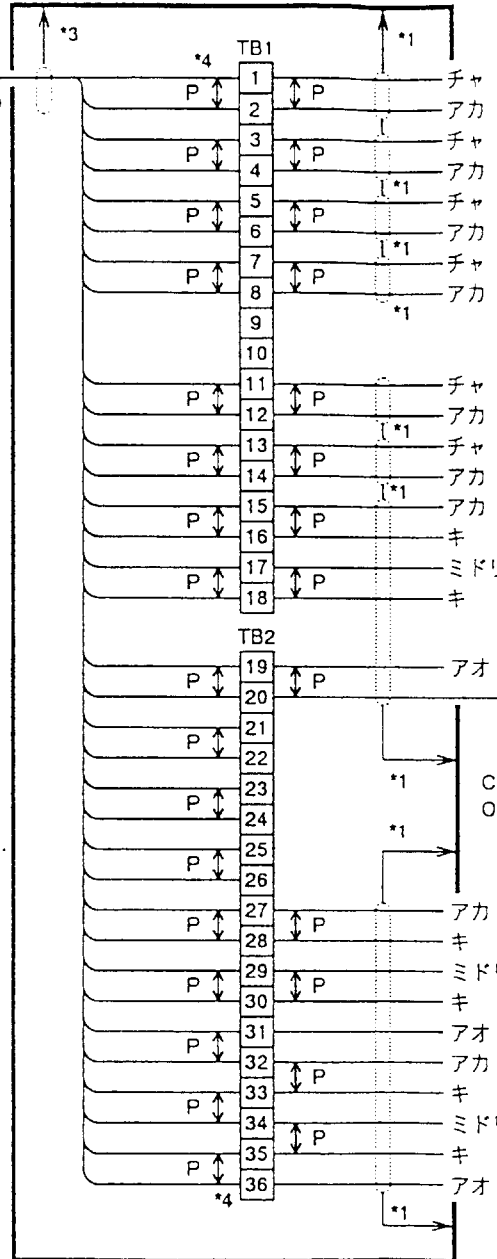
J9 JUNCTION BOX

- PHONE1 (L1) < 1
- PHONE1 (L2) < 2
- PHONE2 (L1) < 3
- PHONE2 (L2) < 4
- PHONE3 (L1) < 5
- PHONE3 (L2) < 6
- PHONE4 (L1) < 7
- PHONE4 (L2) < 8
- NC < 9
- NC < 10
- FAX1 (L1) < 11
- FAX1 (L2) < 12
- FAX2 (L1) < 13
- FAX2 (L2) < 14
- DSTBZ1-H < 15
- DSTBZ1-C < 16
- DSTSW1-H < 17
- DSTSW1-C < 18
- DSTSW1ENB < 19
- GND < 20
- SPARE-H < 21
- SPARE-C < 22
- NC < 23
- NC < 24
- NC < 25
- NC < 26
- DSTBZ2-H < 27
- DSTBZ2-C < 28
- DSTSW2-H < 29
- DSTSW2-C < 30
- DSTSW2ENB < 31
- RCVBZ-H < 32
- RCVBZ-C < 33
- RCVSW-H < 34
- RCVSW-C < 35
- RCVSWENB < 36
- NC < 37

17JE-23370-02-(D8C)

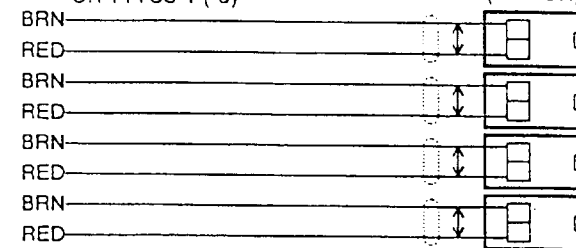
ケーブル接続箱 (2) JUNCTION BOX IB-311

20P VINYL CABLE 1.5m (W/CONNECTOR)



08S0097-0 2m

CO-0.2 x 2P, 10/20/30/40/50m (OPTION) OR TTYCS-1 (*6)



MJ-2S (OPTION)

2C CABLE W/ PLUG 3m

電話機 TELEPHONE FC622SL1 No. 1 電話機 No. 1 TELEPHONE

電話機 TELEPHONE FC622SL1

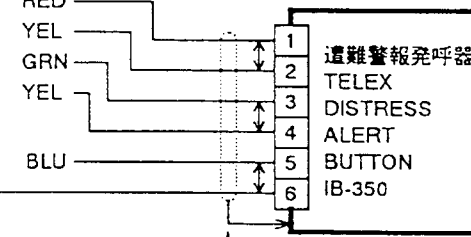
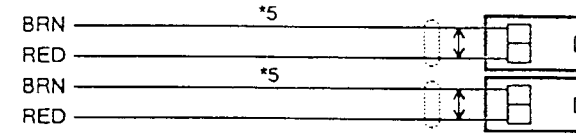
電話機 TELEPHONE FC622SL1

電話機 TELEPHONE FC622SL1

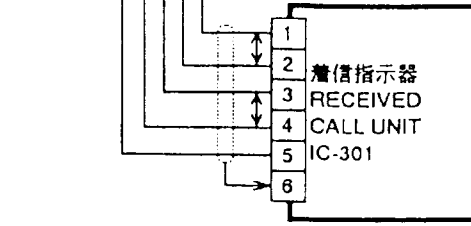
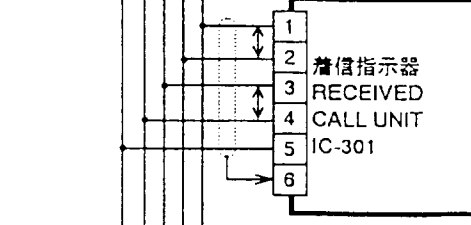
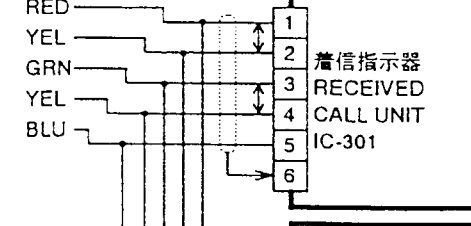
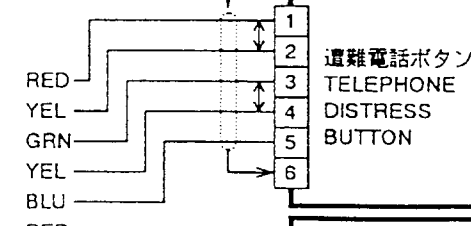
ファックス (FAX) (FAX 1)

ファックス (FAX)

OPTION



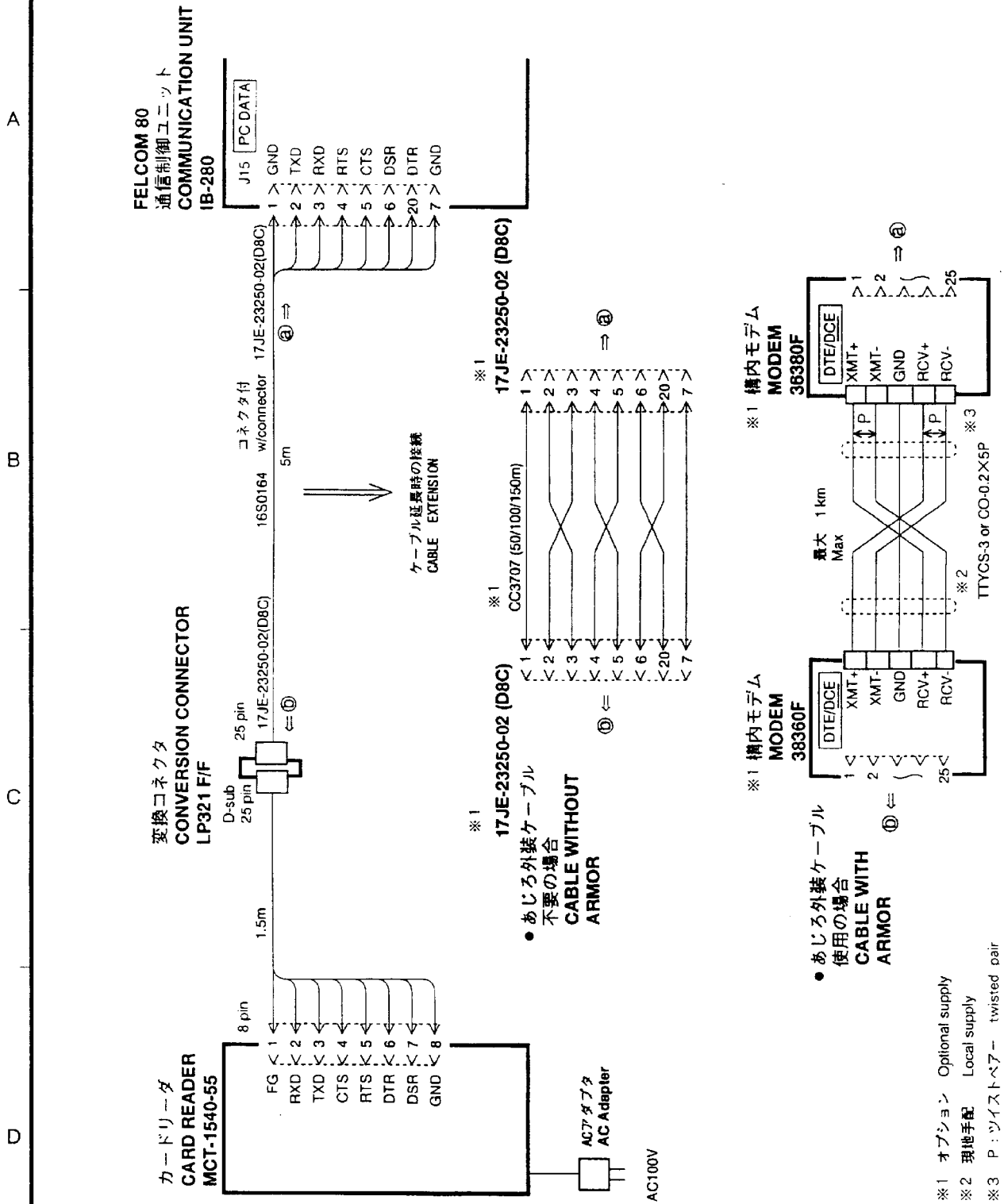
CO-0.2 x 5P, 10/20/30/40/50m (OPTION) OR TTYCS-3 (*6)



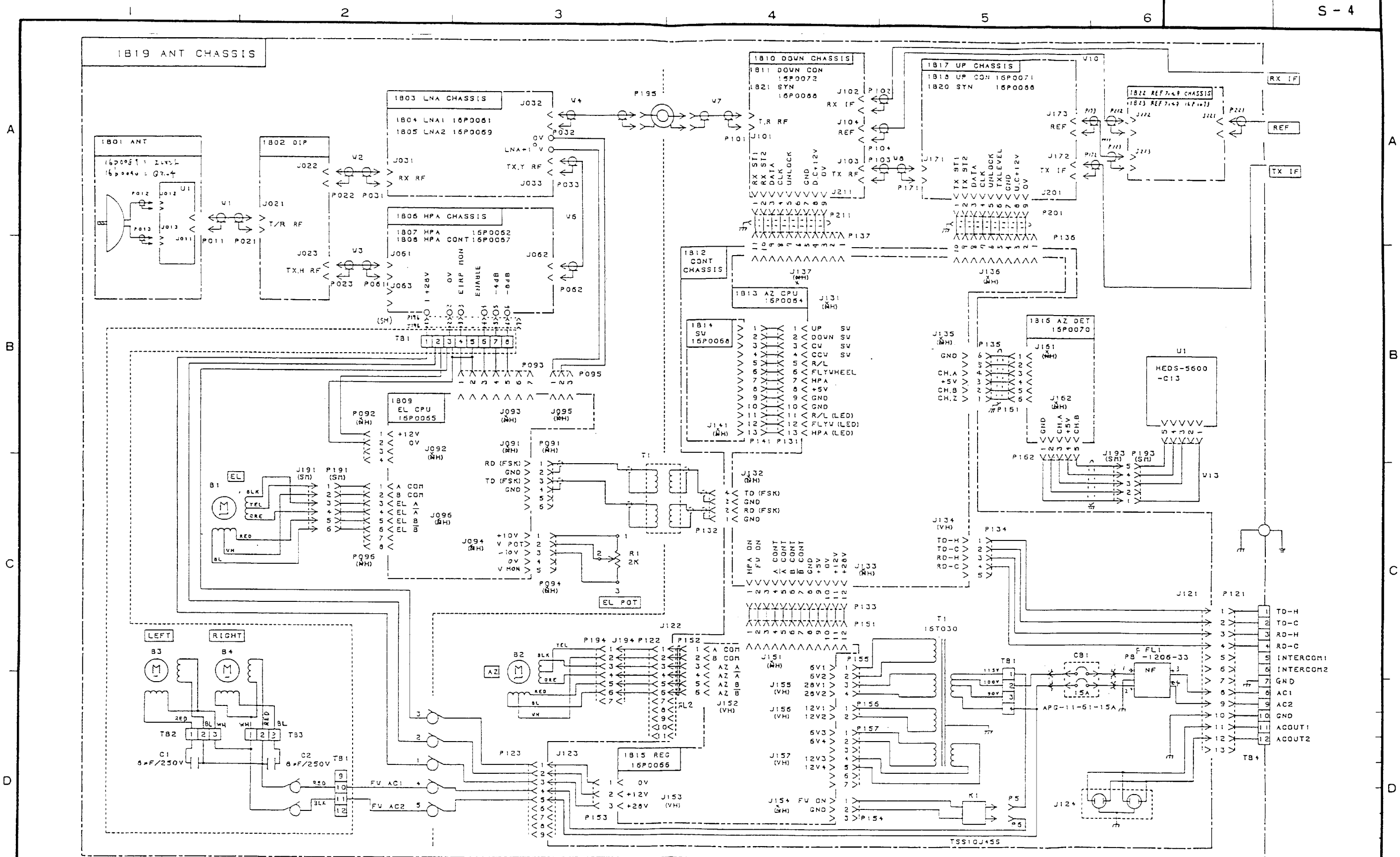
- *1 ケーブルクランプでアースに落とす。
- *2 コネクターでクランプに落とす。
- *3 圧着端子でアースに落とす。
- *4 工場で作成済
- *5 9600bps 通信の場合のみ。2400bps 通信では、電話機のラインに接続すること。
- *6 造船所手配。

- *1 GROUND THRU CABLE CLAMP.
- *2 GROUND THRU CONNECTOR CLAMP.
- *3 GROUND TO CHASSIS THRU CRIMP-ON LUG.
- *4 CONNECTION MADE AT FACTORY.
- *5 ONLY FOR 9600 bps COMMUNICATION. FOR 2400 bps, CONNECT FAX TO TELEPHONE LINE.
- *6 SHIPYARD SUPPLY.

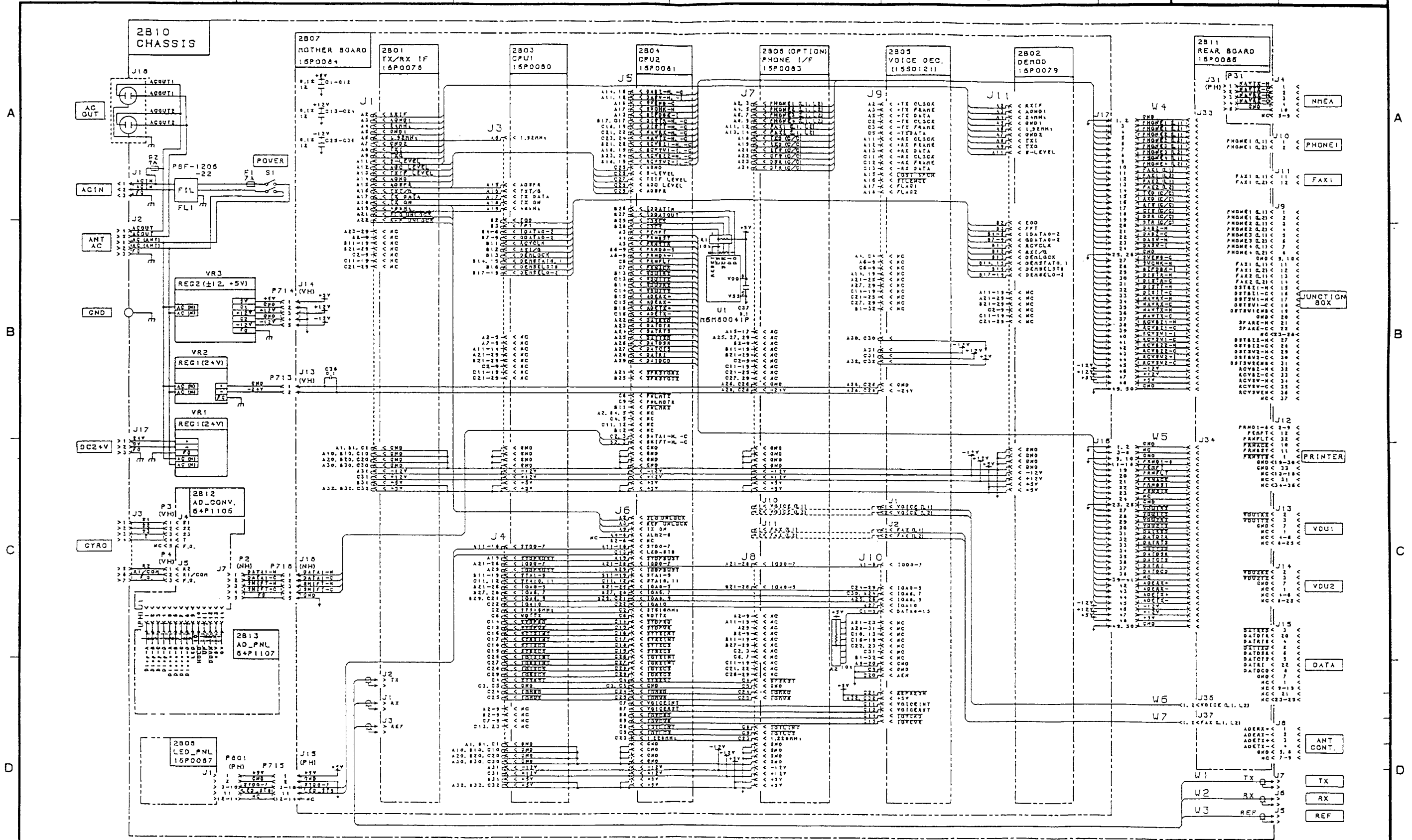
名称 TITLE	IB-311 との接続 CONNECTIONS TO IB-311
図番 DWG.NO	C5589 - C02 - G



DRAWN Apr. 8, '96 T. NISHINO			TYPE MCT-1540-55
CHECKED Apr. 9 '96 TAKAHASHI			名称 カードリーダー
APPROVED Apr. 9 '96 K. OTA	FELCOM 80		相互結線図
SCALE MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	NAME CARD READER
DWG NO. C5589-C10-A			INTERCONNECTION DIAGRAM

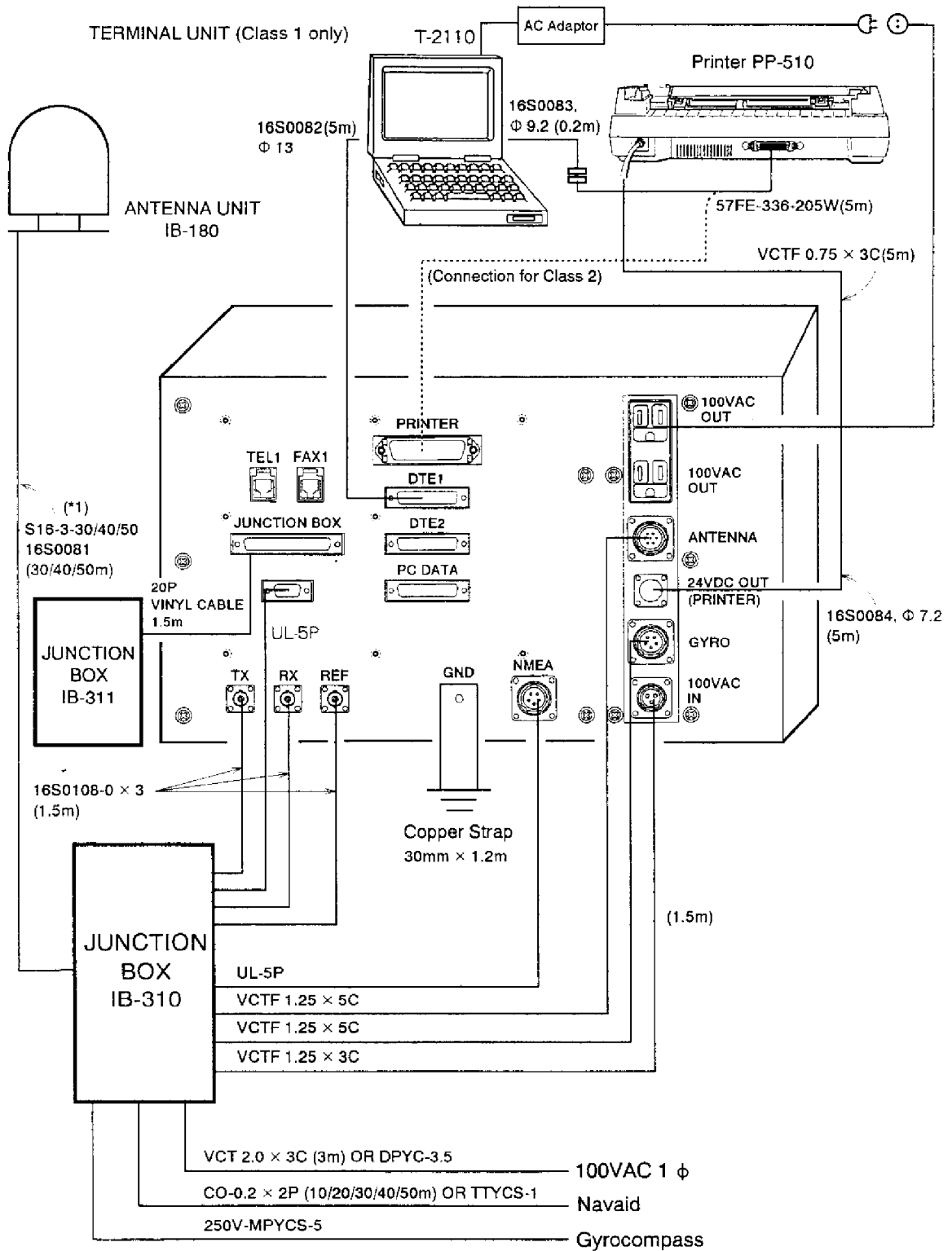


REMARKS		TYPE	
		IB180	
DRAWN T.N		名称 アンテナ総合	
APPROVED		NAME ANTENNA UNIT (GENERAL)	
SCALE	MASS kg	APPLICABLE TO: FELCOM80	BLOCK NO. 1B19
		DWG NO. C5589-K02-	C



REMARKS		TYPE	
		IB280	
		名称 通信制御ユニット総合	
DRAWN	APPROVED	NAME	
T.N	7/21/99	COMMUNICATION UNIT (GENERAL)	
SCALE	MASS	APPLICABLE TO:	BLOCK NO.
/	kg	FELCOM80	2810
		MODEL	DWG NO.
			C5589-K01-C

3.1 Communication Unit

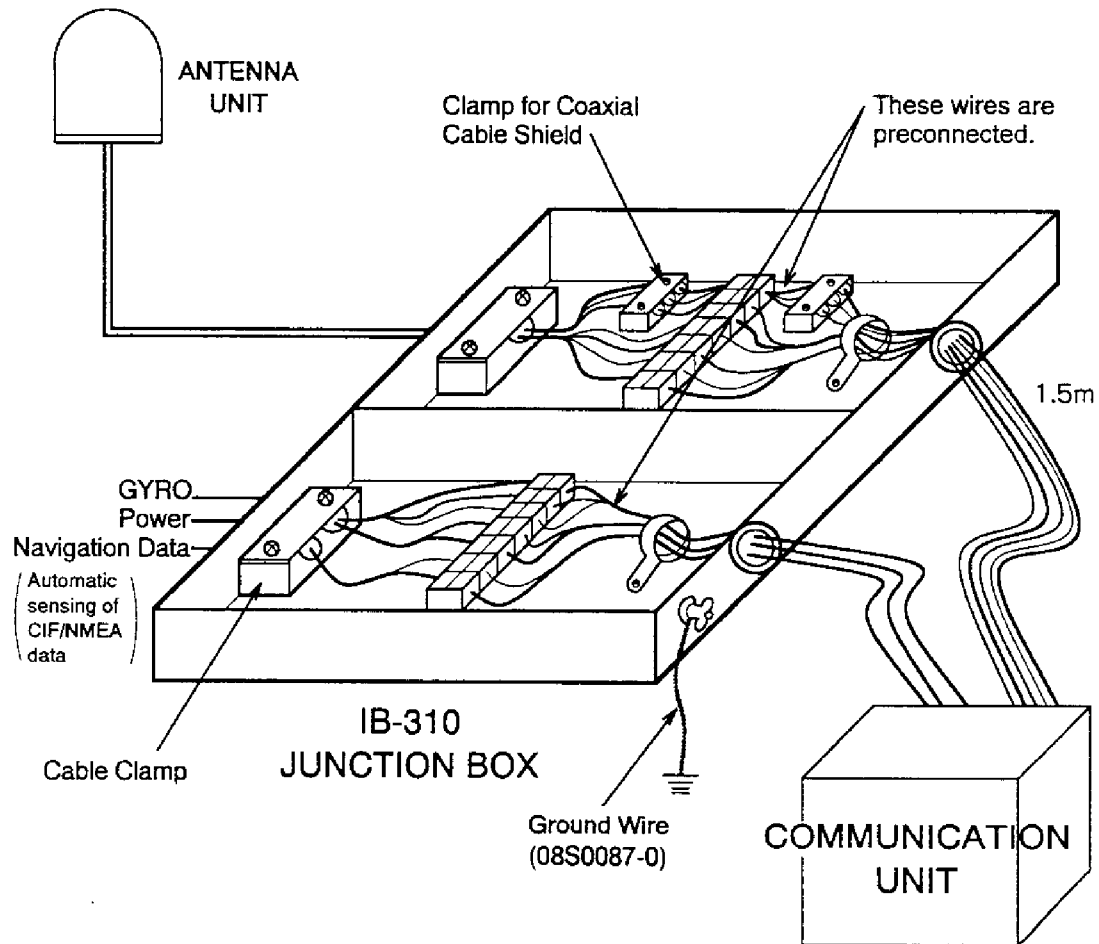


(*1): 70 m or 100 m antenna cable available.
 In this case, connect the antenna cable to the Communication Unit directly without using the IB-310. For further details, refer to page 3-10.

3.2 Junction Box IB-310

Connections

Wiring between the junction box and the communication unit is preconnected. Connect the antenna cable, power cable and cables of external equipment to the junction box by referring to the interconnection diagram on page S-1. Use a small screwdriver to connect wires to the terminals. While pushing a terminal top by the screwdriver, insert a wire core. For cables with shields be sure the shields are well grounded in the cable clamps.



3.3 Junction Box IB-311

General

The Junction Box IB-311 functions to

- connect Telex Distress Alert Button IB-350 and Telephone Distress Button IB-360,
- connect multiple telephones or facsimiles, or
- connect a telephone or facsimile to the Communication Unit when the distance between them is more than 3 meters.

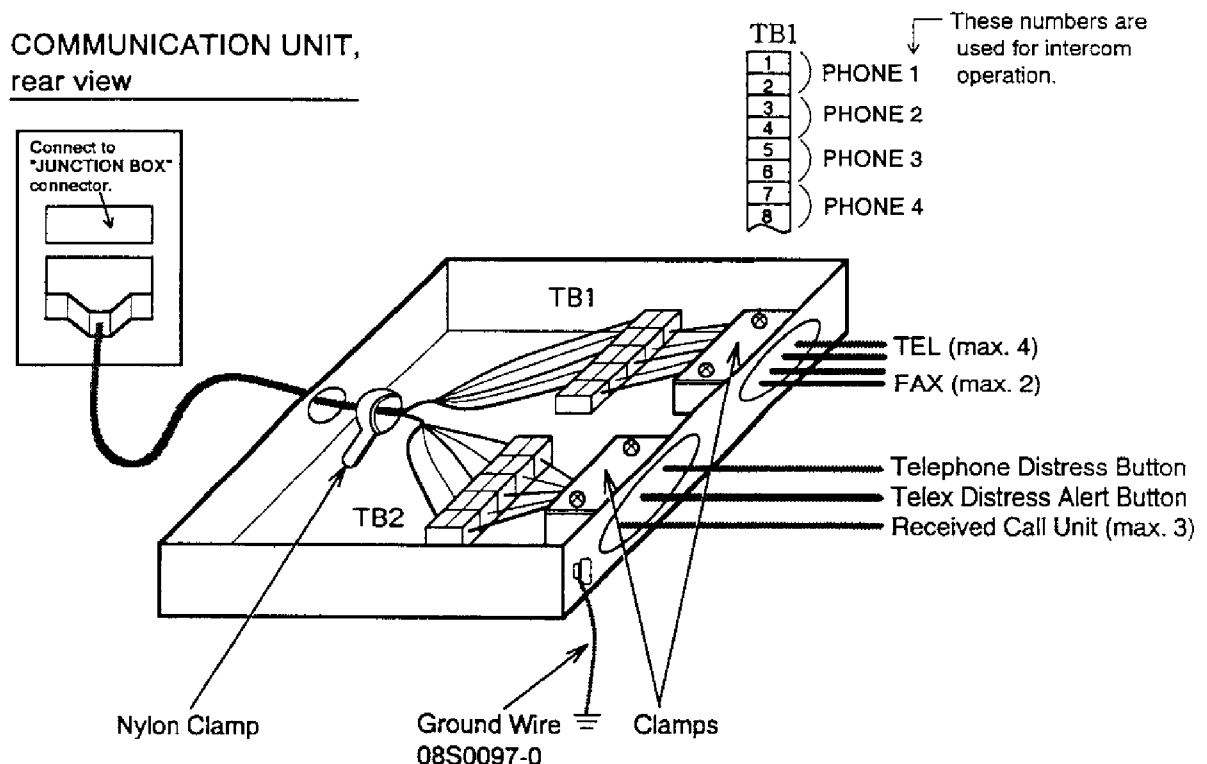
Cabling

A 1.5 meter long cable with connectors comes with the IB-311 for connection to the Communication Unit.

The cable which runs between the IB-311 and telephone or facsimile is a 1P twisted pair cable. (Two 3P twisted pair cables are used between the IB-311 and IB-350/IB-360.) For wiring inside the junction box, see the interconnection diagram on page S-2.

Ground

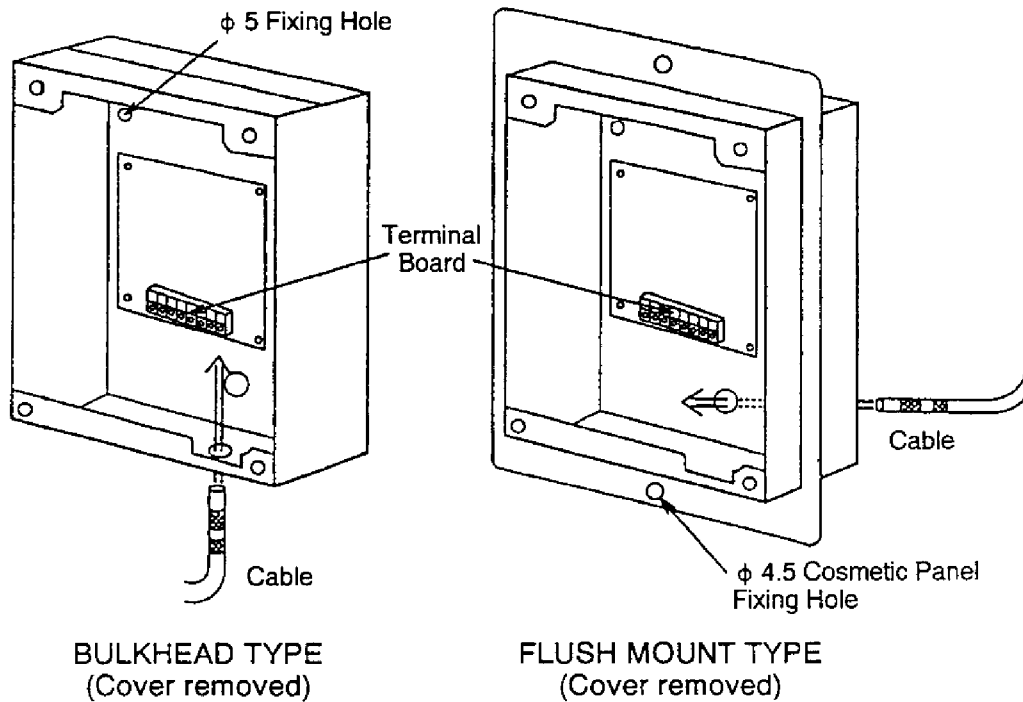
Ground all cables by cable clamps.



3.4 Telex Distress Alert Button IB-350

General

The IB-350 is available in two mounting types: flush mount or bulkhead. The location of the cable gland depends on type; at the rear of the flush mount type unit, and at the base of the bulkhead type unit.



For connections to the terminal board, see the interconnection diagram on page S-2.

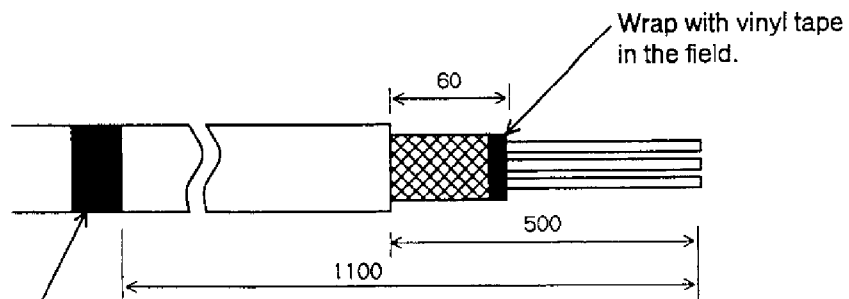
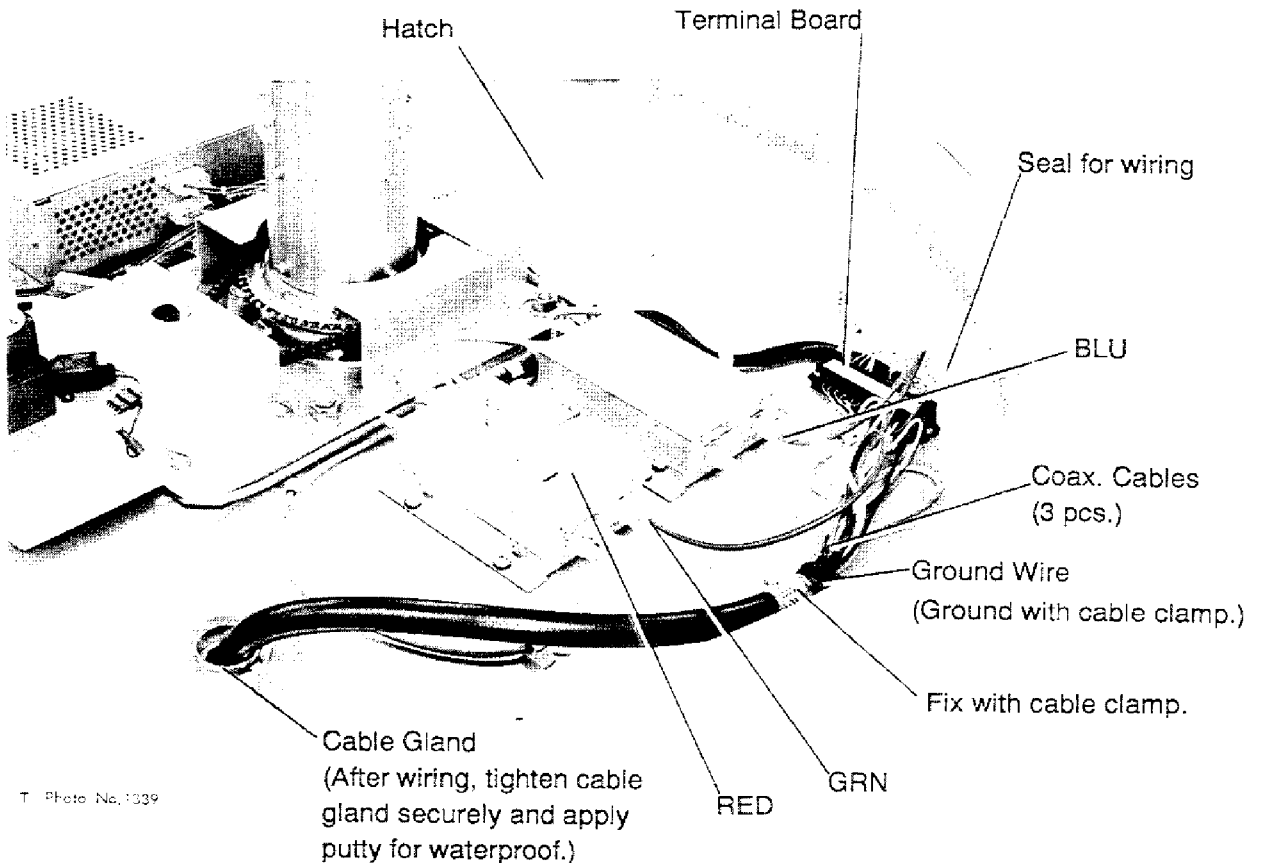
3.5 Telephone Distress Button IB-360

This unit is physically identical to the IB-350 shown above. For connections to the terminal board, see the interconnection diagram on page S-2.

3.6 Wiring Inside the Antenna Unit

Fixing of antenna cable

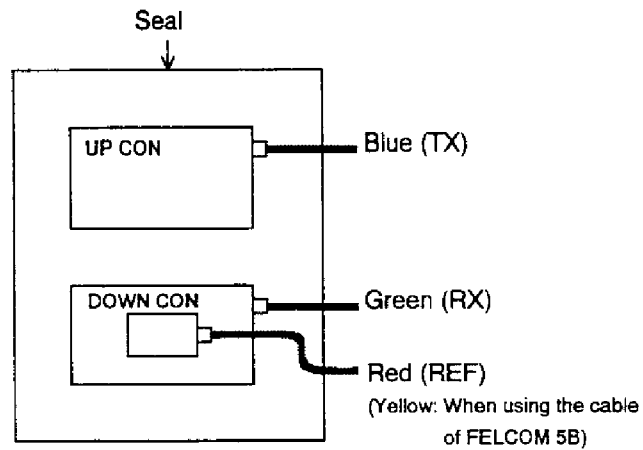
Replace the rubber packing at the bottom of the Antenna Unit with the one supplied with installation materials. (For 70 m or 100 m antenna cable or FELCOM 5B antenna cable, use the rubber packing mounted in the Antenna Unit.) Lead in the antenna cable through the cable gland in the radome base. Fix the cable by the cable clamp.



White Tape → Insert antenna cable to antenna unit so that white tape is located at the bottom of antenna unit.

Fabrication of Antenna Cable (fabricated at factory)

3.6 Wiring Inside the Antenna Unit



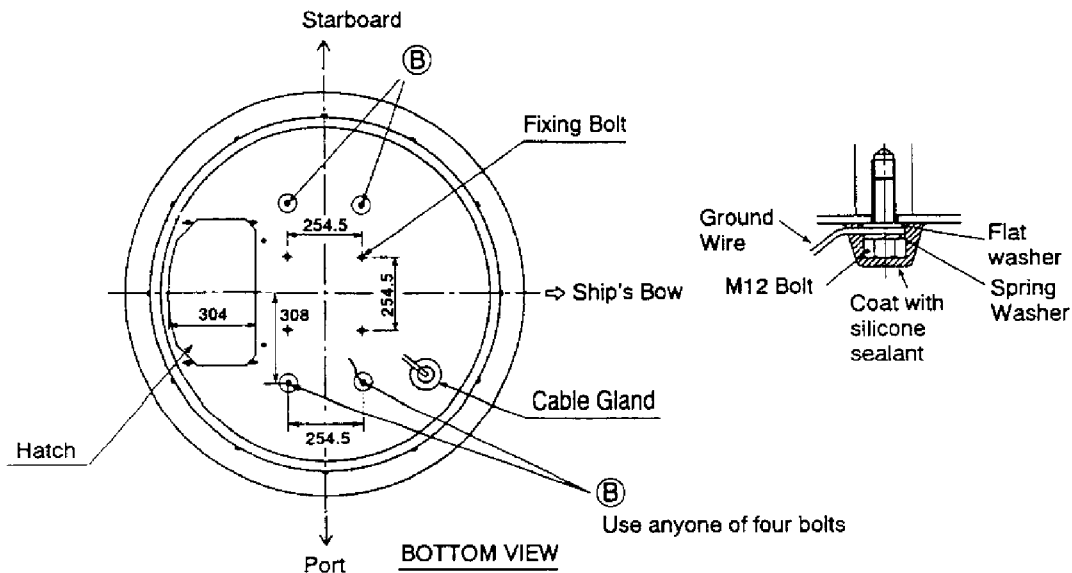
(For the sets having a small box (for filter) on the UP CON chassis, connect three coaxial connectors referring to the seal attached inside the Antenna Unit.)

Connections

Referring to the interconnection diagram on page S-1, connect wires of the antenna cable to the terminal board inside the antenna. The three colored coaxial cables are fitted with connectors. Connect them as shown on the previous page. (Three spare BNC connectors are supplied with the installation materials.)

Ground

A ground wire (IV-14, 50 cm) comes with the antenna unit. Connect it between one of the four fixing bolts (ⓑ) at the base of the radome and the ground bolt on the mast.



ⓑ : Use anyone of four bolts to fasten ground wire.
(M12)

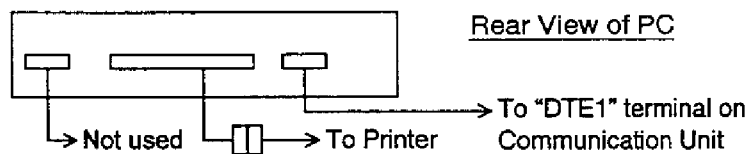
3.7 Terminal Unit (Class 1 only)

General

Only the Class 1 subtype uses a terminal unit, Toshiba's T-1900 personal computer. The T-1900 receives power through the power jack on its rear panel. Since the computer operates by DC power, an AC adaptor connects it to the Communication Unit (outlet). The communications cable 16S0082 is 5 meters long.

Connecting to printer

The personal computer may be connected to a printer by printer cables 16S0083 (0.2 meters) and 57FE-336-205W (5 meters). Refer to page 3-2.



3.8 Printer

The Printer PP-510 is powered by 24 VDC power supplied by the Communication Unit. The power cable used is type 16S0084.

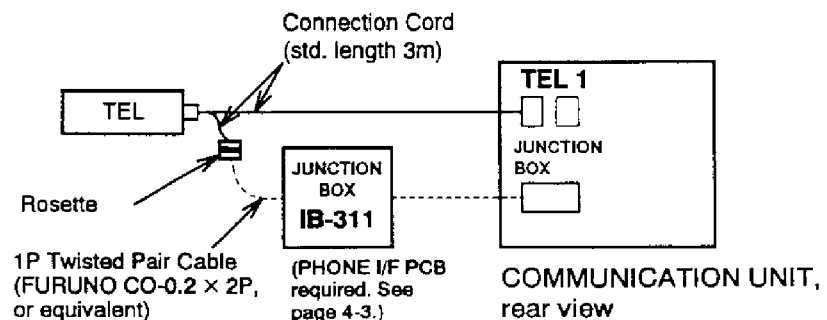
Connecting to communication unit

For Class 2, connect a 36P cable between the printer and the "PRINTER" terminal on the Communication Unit.

3.9 Telephone (s)

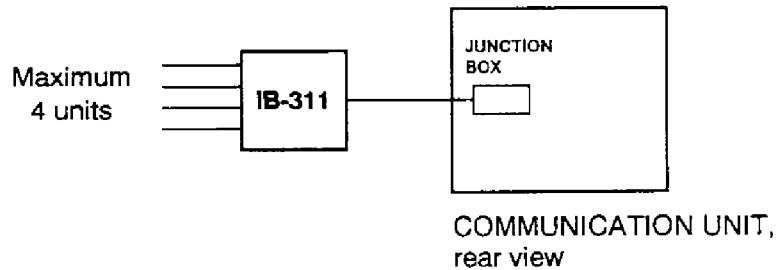
Single unit

Connect the telephone to the Communication Unit by 3 meter cord w/modular plug. If a longer connection cord is required, make the connection by using Junction Box IB-311 and a 1P twisted pair cable, as shown in the figure below.



Two or more units

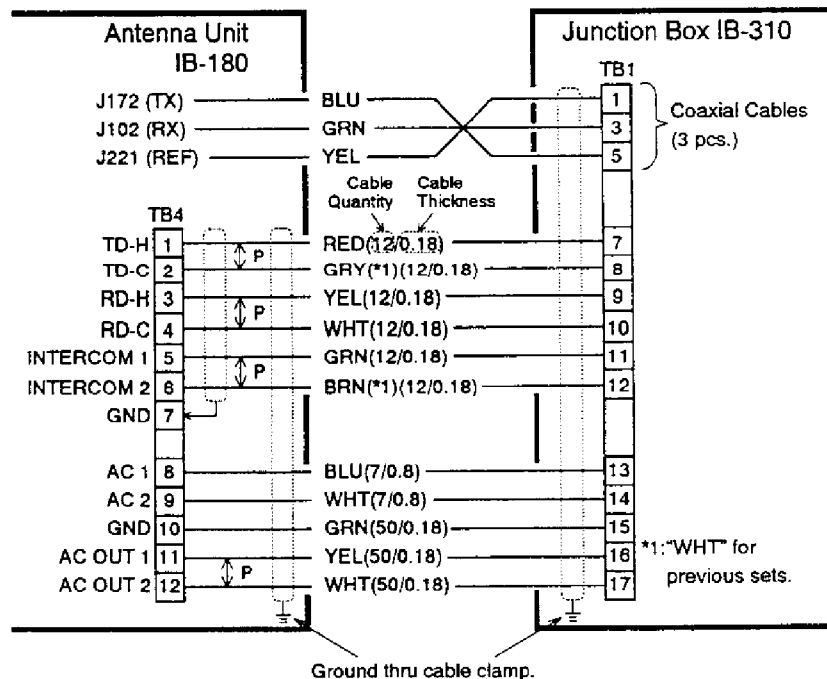
Connection of more than one telephone requires Junction Box IB-311. In this case the TEL1 modular jack on the Communication Unit is not used. After wiring, attach the labels of the phone numbers (PHONE 1 to PHONE 4, local supply) to the telephones. These numbers are used for intercom operation.



NOTE: Connection of two or more units requires installation of the PHONE I/F Board (in the Communication Unit). See page 4-3.

3.10 When using Antenna Cable of FELCOM 5B

Change of the rubber packing at the bottom of the Antenna Unit is not necessary. Connect the antenna cable between the antenna unit and the junction box, referring to the diagram shown below.



3.11 When using 70 m or 100 m Antenna Cable

Conditions to be used

If the antenna cable is extended to 70 m or 100 m, take the following into account:

1. Since the cable diameter is larger (changed from ϕ 23 to ϕ 28), use the original rubber gasket mounted at the bottom of the Antenna Unit. (Do not use the gasket supplied with installation materials.)
2. The cable should be as short as possible: shorten it if possible.
3. To minimize signal loss, connect the cable between the Antenna Unit and the Communication Unit directly (without using the IB-310). Five connectors for connecting the cable to the Communication Unit are supplied together with the cable as installation materials, shown in the table below.

Type of antenna cable

Name	Type	Remarks
Antenna Cable Assy.	S16-3-70	70 m cable with installation materials
	S16-3-100	100 m cable with installation materials

Type: CP16-003200

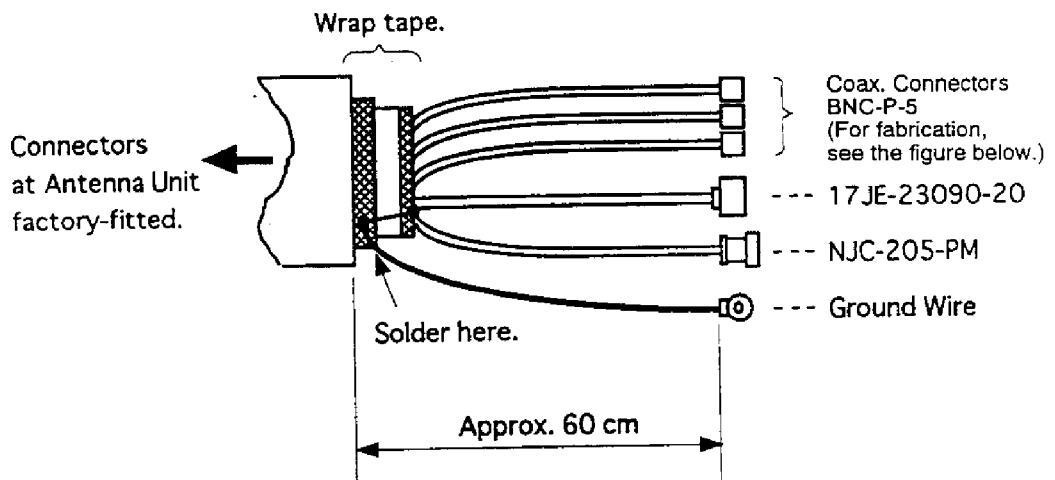
Code No.: 004-430-210

Table of installation materials

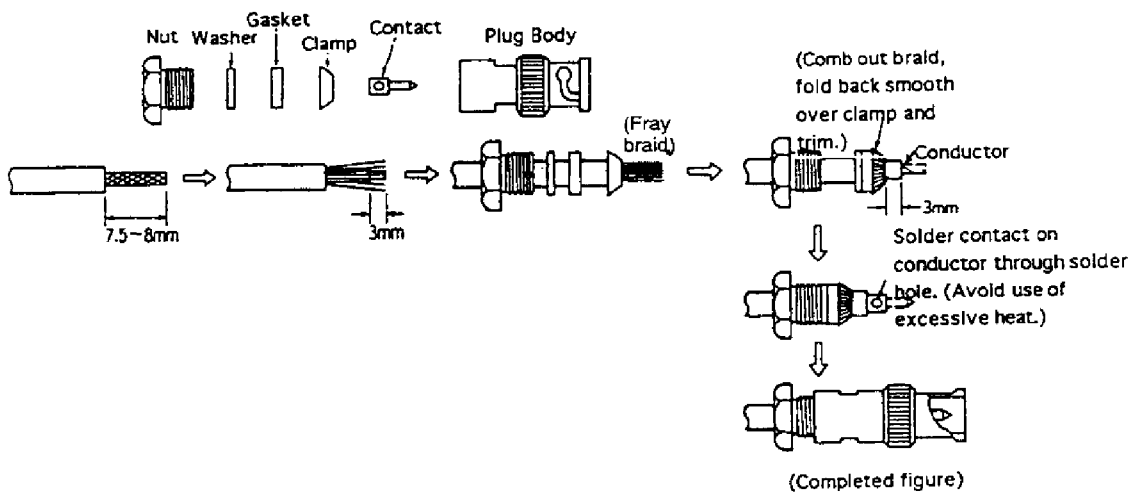
Name	Type	Code No.	Qty
Connector	BNC-P-5	000-500-397	3
	NJC-205-PM	000-109-168	1
	17JE-23090-02 (D8C)	000-132-624	1
Ground Wire	08S0087-0	000-108-138	1

Fabrication of Connectors

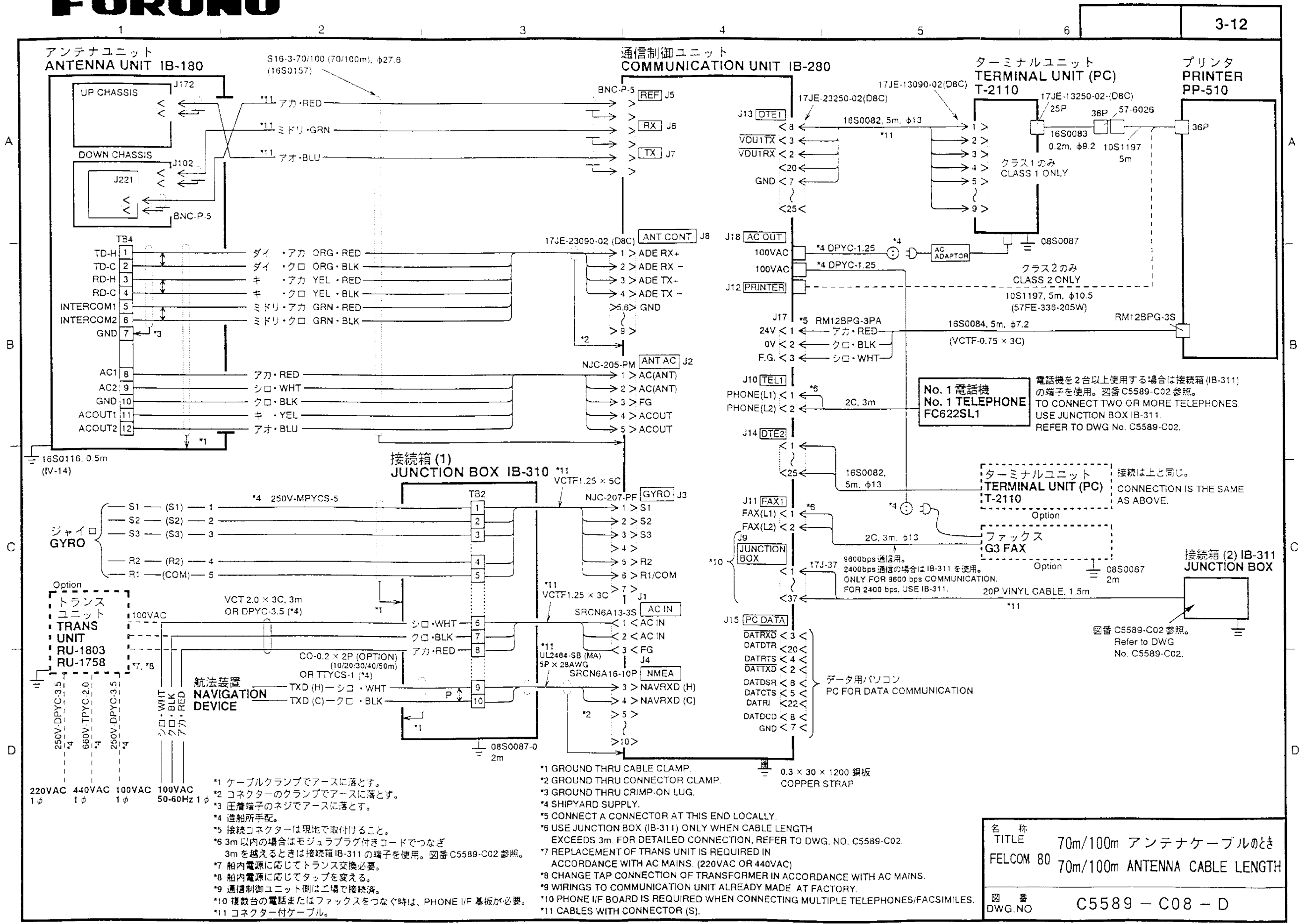
Fabrication of Connectors at Communication Unit Side



Fabrication of Coax. Connectors



For the connections of other connectors, refer to the inter-connection diagram on the next page.



名称
 TITLE 70m/100m アンテナケーブルのとき
 FELCOM 80 70m/100m ANTENNA CABLE LENGTH
 図番
 DWG.NO C5589 - C08 - D

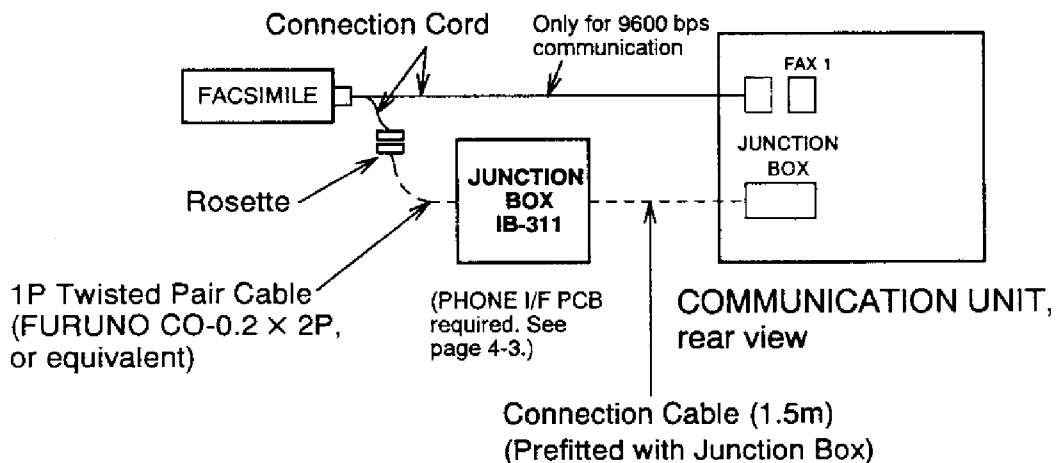
4. Connection of Optional Equipment

4.1 Facsimile

General

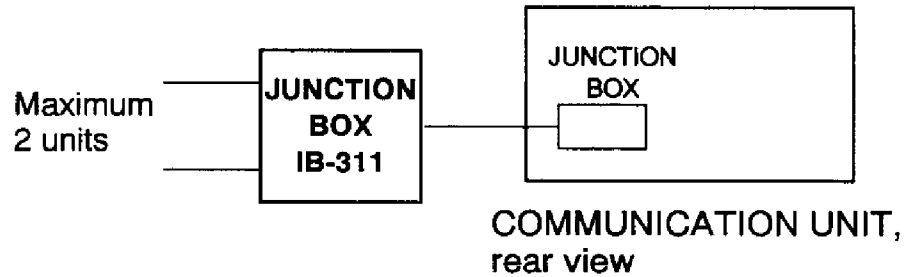
For 9600 bit/sec facsimile communication, the Facsimile is connected to the Communication Unit with a 3 meter connection cord w/modular plug. (Actual length may vary.) However, for 2400 bit/sec facsimile communication, connect it to the telephone line on the Junction Box IB-311 as shown below.

If a longer connection cord is necessary for 9600 bps communication, make the connection by using Junction Box IB-311 (using facsimile line). See schematic diagram on page S-2.



Connecting two units

Connect two facsimile units to the Junction Box IB-311. The IB-311 should be connected to the "JUNCTION BOX" terminal on the Communication Unit. See page S-2 for interconnection of the IB-311.



NOTE: Connection of two units requires installation of the PHONE I/F Board (in the Communication Unit). See page 4-3.

4.2 Received Call Unit IC-301

General

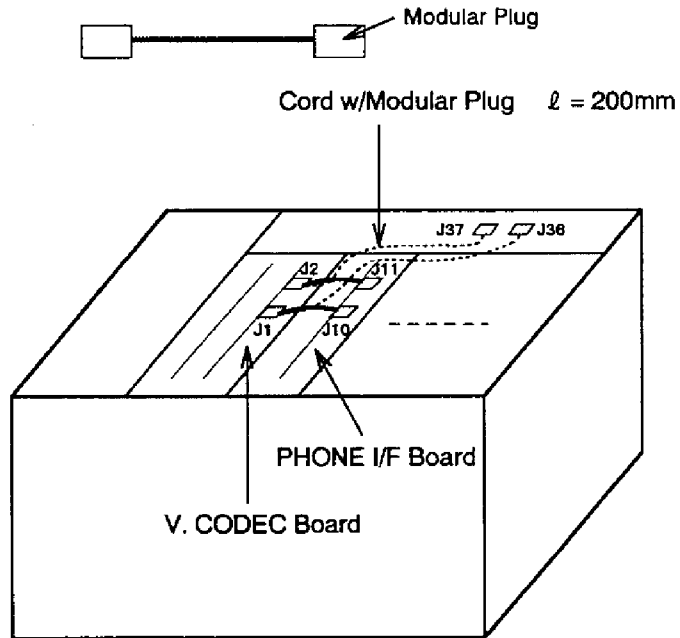
Three IC-301 units can be mounted. The IC-301 is physically identical to the IB-350 on page 3-5. For connections on the terminal board, see the interconnection diagram on page S-2.

After connection is completed, press the **RESET** button on the IC-301. If a beep is released, connection is correct.

4.3 Multiple Telephones/Facsimiles

The PHONE I/F board

Install the PHONE I/F board (supplied as a standard) in the Communication Unit and connect it to the V. CODEC board as shown below.



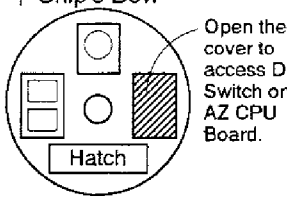
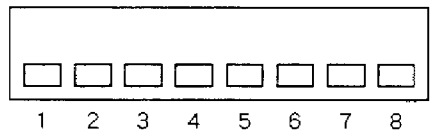
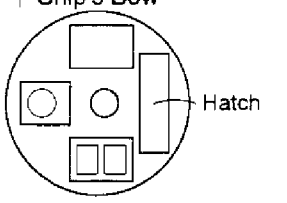
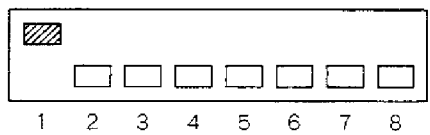
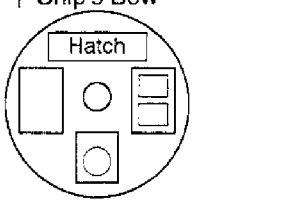
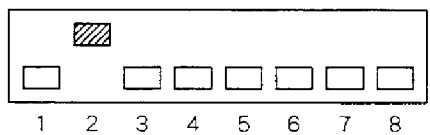
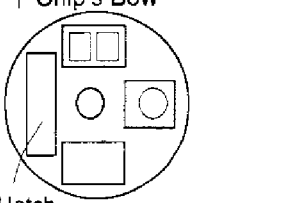
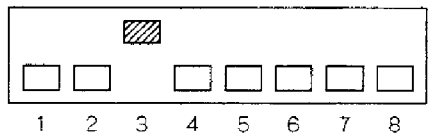
PHONE I/F board installed

V. CODEC J2 $\xrightarrow{\text{FAX}}$ PHONE I/F J11
 V. CODEC J1 $\xrightarrow{\text{TEL}}$ PHONE I/F J10
 (Maximum four telephones, two facsimiles)

5. Initial Settings

5.1 DIP Switch Setting and Hatch Direction

Change the setting of the DIP Switch on the AZ CPU Board in the Antenna Unit when the hatch direction is not stern. For location of the DIP switch, see the next page.

Inside Antenna Unit	DIP Switch
<p>↑ Ship's Bow</p>  <p>Hatch</p>	<p>Ship's Stern (Std. Setting)</p> <p>ON</p> <p>OFF</p>  <p>1 2 3 4 5 6 7 8</p> <p>All OFF</p>
<p>↑ Ship's Bow</p>  <p>Hatch</p>	<p>Starboard</p> <p>ON</p> <p>OFF</p>  <p>1 2 3 4 5 6 7 8</p>
<p>↑ Ship's Bow</p>  <p>Hatch</p>	<p>Ship's Bow</p> <p>ON</p> <p>OFF</p>  <p>1 2 3 4 5 6 7 8</p>
<p>↑ Ship's Bow</p>  <p>Hatch</p>	<p>Port</p> <p>ON</p> <p>OFF</p>  <p>1 2 3 4 5 6 7 8</p>

Hatch

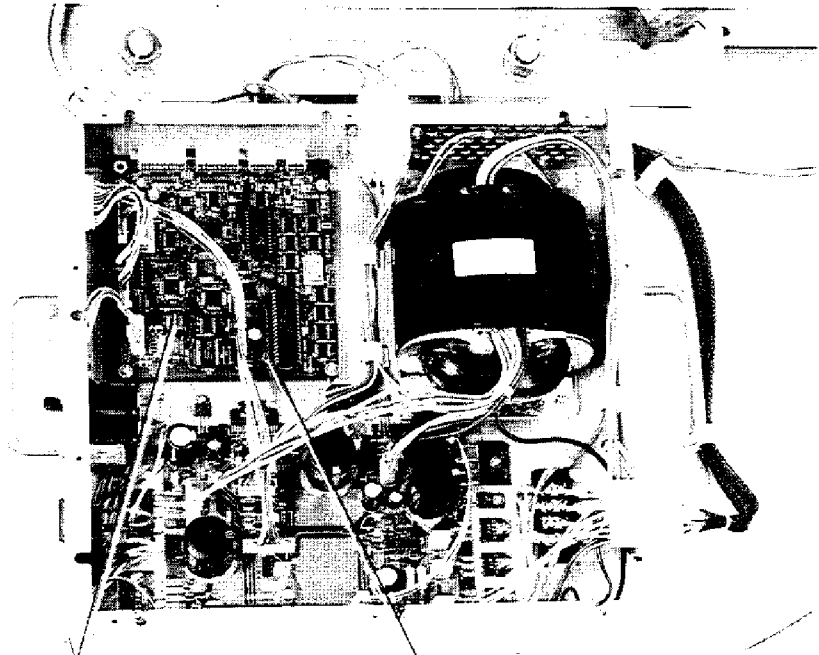


Figure No. 330





DIP Switch S2
(Factory settings: All OFF)

AZ CPU Board

ANTENNA UNIT, inside view

5.2 Setting of Telephone

Change dialing format from dial to pushbutton as follows.
(The handset should be on the hanger.)

1. Press the  key.
2. Press the  key.
3. Press the  key to display “Pb.”
4. Press the  key again.

5.3 Setting of Gyro Converter on AD CONVERTER Board

General

The gyro converter on the AD CONVERTER Board in the Communication Unit converts analog gyrocompass reading into digital coded bearing data for display on the Communication Unit.

This section explains how to set up the AD CONVERTER Board, by using its DIP switches and jumper wires, according to the make and model of the gyrocompass connected.

DIP switch, jumper wire settings

Gyrocompass specifications

The gyro converter is compatible with most gyrocompasses by means of the DIP switches and jumper wires on the AD CONVERTER Board. Below are the gyrocompass specifications it can accommodate.

1. Gyro type
 - AC synchro
 - DC synchro
 - DC step
 - Full-wave pulsating step-by-step
 - Half-wave pulsating step-by-step

AC synchro type

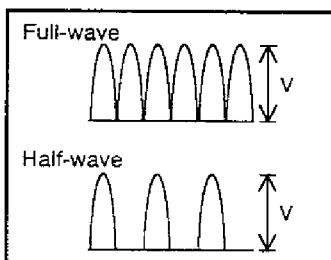
2. Frequency: 50/60 Hz, 400 Hz, 500 Hz
3. Rotor Voltage: VAC
4. Stator Voltage: VAC
5. Gear Ratio: 360x 180x 90x 36x

DC synchro type

2. Rotor Voltage: VDC
3. Stator Voltage: VDC
4. Gear Ratio: 360x 180x 90x 36x

DC step type

2. Supply Voltage: VDC
3. Gear Ratio: 360x 180x 90x 36x



Full-/half-wave pulsating step-by-step type

2. Frequency: 50/60 Hz, 400 Hz, 500 Hz
3. Supply Voltage: VDC
4. Gear Ratio: 360x 180x 90x 36x

Default settings

In the default settings all DIP switches are off and all jumper wires are set to “#1.” (Note that jumper wire JP1’s setting is #1, #2, #3.) In those conditions the gyrocompass having the following specifications can be directly connected without further modification.

- Gyrocompass: AC synchro
- Frequency: 50/60 Hz
- Rotor voltage: 60 to 135 VAC
- Stator voltage: 60 to 135 VAC
- Gear ratio: 360x
- Supply voltage: 30 to 135 VAC

Setting procedure

If the gyrocompass specifications differ from those shown above, set DIP switches and jumper wires as follows. Refer to page 5-7 for parts location.

Start



1. Gyrocompass type (See page 5-10.)

Gyrocompass	SW1-4	SW1-5	SW1-6	JP1
AC Synchro	OFF	OFF	OFF	#1, #2, #3
DC Synchro	OFF	OFF	OFF	#2, #3, #4
DC step-by-step	ON	OFF	OFF	#4, #5, #6
Full-wave pulsating step-by-step	OFF	ON	OFF	#4, #5, #6
Half-wave pulsating step-by-step	ON	ON	OFF	#4, #5, #6

2. Frequency

Frequency	SW1-7	SW1-8	Remarks
50/60Hz	OFF	OFF	AC synchro, pulsating step-by-step
400Hz	ON	OFF	AC synchro, pulsating step-by-step
500Hz	OFF	ON	AC synchro, pulsating step-by-step
DC	ON	ON	DC synchro, DC step



Continued on next page

3. Rotor Voltage (measured between R1 and R2)

This step is for the AC synchro gyrocompass. For DC synchro gyrocompass, go to step 6.

Rotor Voltage	SW2-1	JP3
20 to 45 VAC	ON	#2
30 to 70 VAC	OFF	#2
40 to 90 VAC	ON	#1
60 to 135 VAC	OFF	#1

4. Stator voltage (measured between S1 and S2)

Stator Voltage	SW2-2	SW2-3	JP2
20 to 45 VAC or 20 to 60 VDC	ON	OFF	#2
30 to 70 VAC or 40 to 100 VDC	OFF	OFF	#2
40 to 90 VAC	ON	OFF	#1
60 to 135 VAC	OFF	OFF	#1

5. Gear ratio

Gear	SW1-1	SW1-2	SW1-3
360x	OFF	OFF	OFF
180x	ON	OFF	OFF
90x	OFF	ON	OFF
36x	ON	ON	OFF

6. Power supply voltage

Voltage	JP4	JP5
20 to 45 VAC or 20 to 60 VDC	#2	#2
30 to 135 VAC or 40 to 100 VDC	#1	#1

7. Transmitting interval of NMEA 0183 data

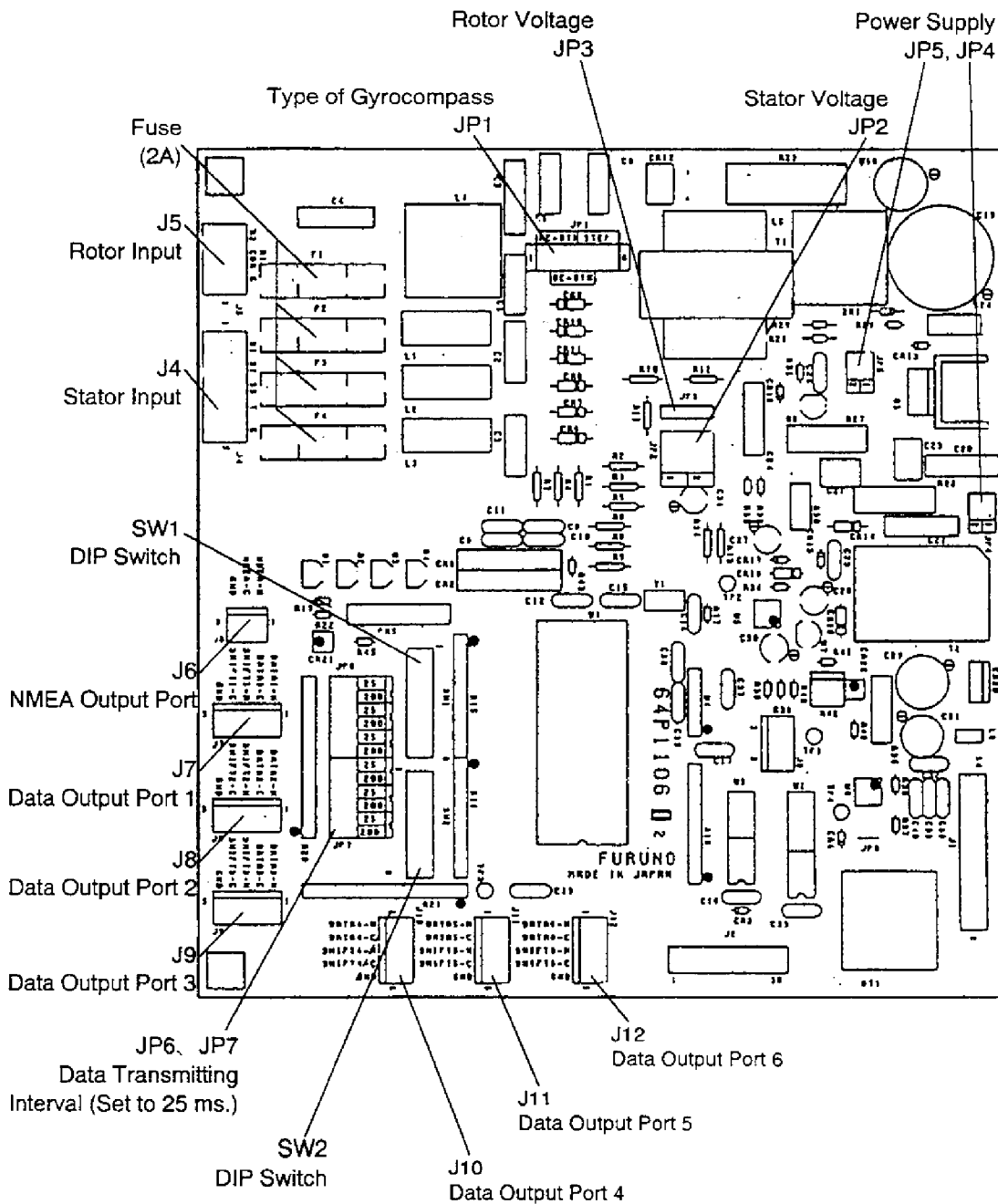
Set according to specifications of equipment which is to receive A/D converter data.

Transmitting Interval	SW2-4
2 seconds	ON
1 second	OFF

8. Data transmitting interval

Select data transmitting interval of ports 1 to 6 by jumper wires JP6 and JP7. The transmitting interval is available in 25 ms or 200 ms. However, set to 25 ms for all.

End



AD CONVERTER Board 64P1106

Function of DIP Switches and Jumper Wires

The function of each DIP switch and jumper wire is as shown in the tables which follow.

DIP switch SW1

Segment	Function	Setting			
SW1-1, -2, -3	Gear ratio	<u>SW1-1</u>	<u>SW1-2</u>	<u>SW1-3</u>	
		OFF	OFF	OFF	360x
		ON	OFF	OFF	180x
		OFF	ON	OFF	90x
		ON	ON	OFF	36x
SW1-4, -5, -6	Type of gyrocompass	<u>SW1-4</u>	<u>SW1-5</u>	<u>SW1-6</u>	
		OFF	OFF	OFF	AC synchro
		OFF	OFF	OFF	DC synchro
		ON	OFF	OFF	DC step
		OFF	ON	OFF	Full-wave pulsating step-by step
ON	ON	OFF	Half-wave pulsating step-by step		
SW1-7, -8	Frequency	<u>SW1-7</u>	<u>SW1-8</u>		
		OFF	OFF		50/60 Hz
		ON	OFF		400 Hz
		OFF	ON		500 Hz
		ON	ON		DC

DIP switch SW2

Segment	Function	Setting		
SW2-1	Rotor voltage	<u>SW2-1</u>		
		ON	20 to 45 VAC	
		OFF	30 to 70 VAC	
		ON	40 to 90 VAC	
		OFF	60 to 135 VAC	
SW2-2, -3	Stator voltage	<u>SW2-2</u>	<u>SW2-3</u>	
		ON	OFF	20 to 45 VAC
		OFF	OFF	30 to 70 VAC
		ON	OFF	40 to 90 VAC
		OFF	OFF	60 to 135 VAC
		ON	OFF	20 to 60 VDC
OFF	OFF	40 to 100 VDC		
SW2-4	NMEA0183 output interval	<u>SW2-4</u>		
		ON	2 seconds	
		OFF	1 second	
SW2-5	Self test	<u>SW2-5</u>		
		ON	self test available	
		OFF	self test not available	
SW2-6, -7	Not used			
SW2-8	CPU reset	normally off; turn on and off to reset CPU.		

Jumper wire JP1

Segment	Function	Setting
#1, #2, #3 #2, #3, #4 #4, #5, #6	Type of gyrocompass	AC synchro DC synchro DC step

Jumper wire JP2

Segment	Function	Setting
#2 #1	Stator voltage	20 to 70 VAC, or 20 to 100 VDC 40 to 135 VAC

Jumper wire JP3

Segment	Function	Setting
#2 #1	Rotor voltage	20 to 70 VAC 40 to 135 VAC

Jumper wire JP4

Segment	Function	Setting
#2 #1	Supply voltage	20 to 45 VAC, or 20 to 60 VDC 30 to 135 VAC, or 40 to 100 VDC

Jumper wire JP5

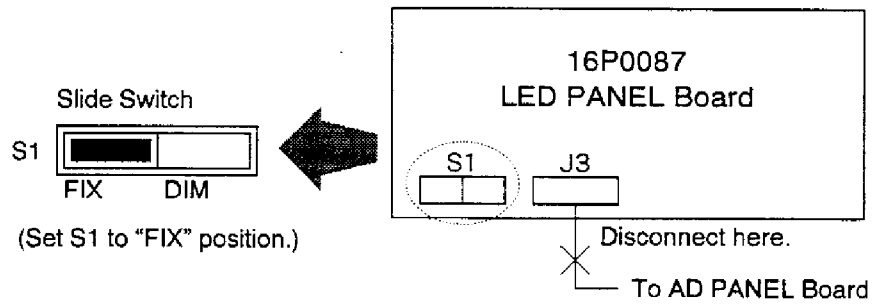
Segment	Function	Setting
#2 #1	Supply voltage	20 to 45 VAC, or 20 to 60 VDC 30 to 135 VAC, or 40 to 100 VDC

Modification When Using DC Step Type Gyrocompass**General**

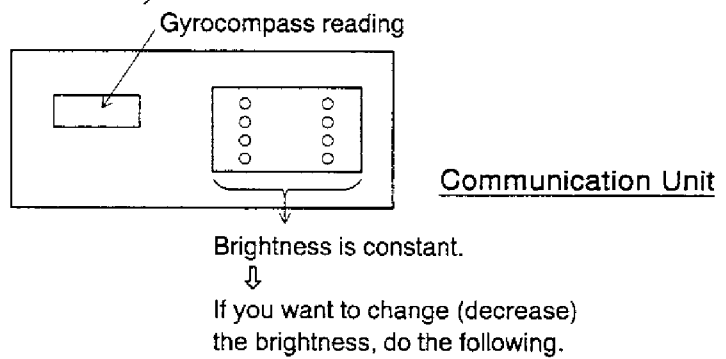
If DC step type gyrocompass is used, modification of the Communication Unit is required to prevent the fuse of the gyrocompass from being blown.

Modification in the field

Disconnect the plug mated to J3 on the LED PANEL board (16P0087) at the rear of the front panel of the Communication Unit. Further change the setting of the slide switch S1 on the LED PANEL board.

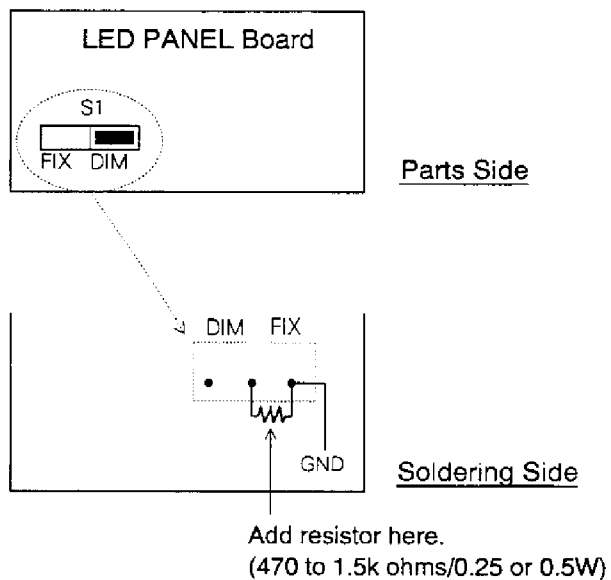


By this modification, the brightness of the LEDs on the front panel is fixed. (Brightness not adjustable with DIMMER control.)



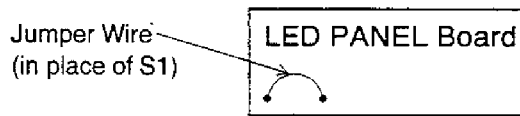
Decreasing brightness of LEDs

Set S1 to "DIM" position and add a carbon resistor (470 to 1.5 K ohms, 0.25 or 0.5 W) to the LED PANEL board as follows.



Factory Modification

From the production in July 1994, S1 and J3 on the LED PANEL board are removed. A jumper wire is added in place of S1.



To decrease the brightness of LEDs, cut jumper wire and add a carbon resistor there.

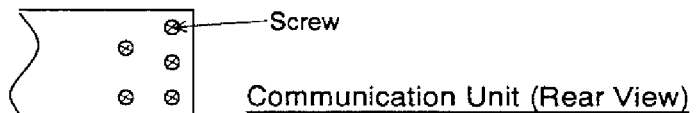
When gyrocompass power supply is less than 30VDC

Use external power supply. Take it from "AC100V OUT" terminal (AC outlet) of the Communication Unit.

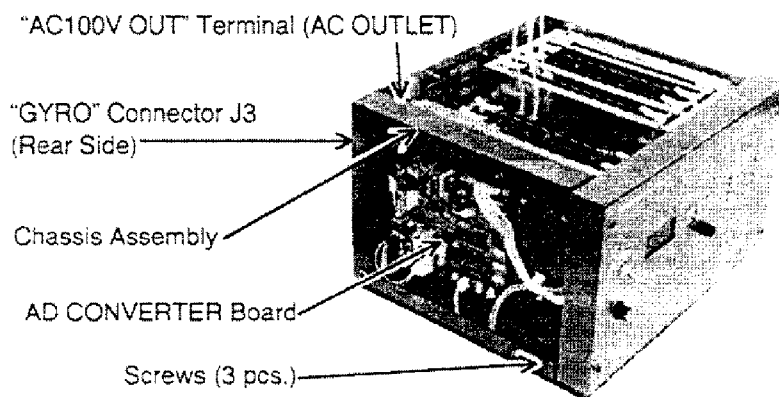
Procedure

1. To remove chassis assembly fixing the AD CONVERTER board:

- ① Remove front panel by loosening six screws.
- ② Loosen five screws on the rear side.



- ③ Loosen three screws securing chassis assembly to the main body.



2. Unsolder pin No. 5 (GRN) and 6 (BLU) of "GYRO" connector J3 (rear side) and solder them to "AC100V OUT" terminal.
3. Put a jumper wire between pin Nos. 6 and 4 of "GYRO" connector J3.
4. Remove JP1 on the AD CONVERTER board. (Nothing connects to JP1.)
5. Reassemble the Communication Unit.

5.3 Setting of Gyro Converter on AD CONV

DIP switch and jumper wire setting (Gyro conv. board)

Revised at Feb. 1, 1996

Maker	Models	Specification	SW 1-1	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8	SW 2-1	SW 2-2	SW 2-3	JP1	JP2	JP3	JP4	JP5	
FURUNC	GY-700	DC step 100V 180x 5-wire, open collector	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	OFF	OFF	#4, #5,#6	#2	-	#1	#1	
Anschutz	Standard 2,3	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 22V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	#1, #2,#3	#2	#2	#1	#1	
	Standard 4,6	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 90V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#2	#1	#1	#1	
	Standard 20	DC step 35V 180X COM(-) 3-wire (+)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	-	#2	#2	
Yokogawa Navtec (Plath type)	C-1/1A/2/3 A-55, B-55	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 22V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	#1, #2,#3	#2	#2	#1	#1	
	CMZ-250X/ 300X/500	DC synchronous 360X	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	-	ON	OFF	Remove	#2	-	*	*	
		DC step 35V 180X COM (+) 3-wire (-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	-	#2	#2	
	CMZ-100/200/ 300 C-1Jr.D-1Z/1/ 3 IPS-2/3	AC synchronous 50/60Hz Rotor voltage: 100V Stator voltage: 90V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
CMZ-50 Note 2	step 35V 180X COM (+) 3-wire (-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	Remove	#2	-	*	*		
Plath	NAVGAT I/III	AC synchronous 50/60Hz Rotor voltage: 50/60V Stator voltage: 68V 360x	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#2	#2	#1	#1	
Tokimec (Sperry type)	ES-1/2/11 GLT-101/102/ 103/106K/107	AC synchronous 50/60Hz Rotor voltage: 100/110V Stator voltage: 90V 36x	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1	
	ES-11A/110 TG-200 PR222R/2000 PR237L/H GM 21	AC synchronous 50/60Hz Rotor voltage: 100/110V Stator voltage: 22V 90x	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
	MK-14 MOD-1/2T NK-EN,NK-EI	DC step 70V 180x COM(-), 3-wire(+)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	OFF	OFF	#4, #5,#6	#2	-	#1	#1	
	SR-130/140	DC step 70V 180x 5-wire, open collector	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	-	OFF	OFF	#4, #5,#6	#2	-	#1	#1	
	TG-100/5000 PR-357/130/ 140, ES-17 GLT-201/202/ 203	DC step 70V 180x COM(+), 3-wire(-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	OFF	OFF	#4, #5,#6	#2	-	#1	#1	
	TG-6000	DC step 24V 180x	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	-	#2	#2	
	GM-11	AC synchronous 50/60Hz Rotor voltage: 100V Stator voltage: 90V 90X	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1
	SR-120,ES-16 MK-10/20/30	DC step 35V 180x	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	-	#2	#2	
Kawasaki	GX-31	AC synchronous 50/60Hz Rotor voltage: 100/110V Stator voltage: 90V 90x	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	#1, #2,#3	#1	#1	#1	#1	
Armabrown	MK-10,MKL-1 SERIES1351, MOD-4	DC step 50V 180x COM(+), 3-wire(-)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	OFF	OFF	#4, #5,#6	#2	-	#1	#1	
Robertson	SKR-80	DC step 35V 180x COM(-), 3-wire(+)	ON	OFF	OFF	ON	OFF	OFF	ON	ON	-	ON	OFF	#4, #5,#6	#2	-	#2	#2	

Note1) *: Set JP4 and JP5 according to the voltage of the external power supply.

Note 2) If CMZ-50 has 35VDC, set JP1 to #4, #5, #6.

5.4 Initialization of Facsimile PX-150/UF-128M

Clearing RAM

Turn the power on and press , (four times) , , , , and in that order.

Changing dialing format

Change dialing format from dial (pulse) to pushbutton.

1. Press , , , and in that order to change to pushbutton type dialing format.



2. Press to register setting. Then press to escape.

Changing system settings

Change the system settings as shown below.

Note that if power is turned off for a long time (ex. one month), a part of system settings may be changed. Therefore clear the contents of RAM by following the procedure shown above then change the system settings.

Key Stroke

(The unit should be in stand-by.)

- Change dialing format to pushbutton as shown above and then press key successively to light LED located at left-hand side of the key. (Reception mode is set to "Fax only".)

Note: *Since facsimile telephone is used at commissioning for 2400 bit/sec communication, the LED near the key should be off. After commissioning is terminated, it should be on (lit) as shown above.*

• Modem Speed & TX Level

→ (4 times, slowly) → → → → → → → → (TX Level: -15 dBm) → (Twice) → (00 for 2400 bps fax Tx, 03 for 9600 bps fax Tx) → → (00 for 2400 bps fax Rx, 03 for 9600 bps fax Rx) → (Twice) → To *1

• RX/TX Equalizers

*1 → → (RX EQ: 0 km) → → → (TX EQ: 7.2 km) → (See note 1.) → To *2

• Panasonic Function

*2 → Move cursor to extreme left by . → → → → → (set to CCITT standard) → → (Twice) → Returns to stand-by display.

Note1: If the facsimile does not transmit data in good order, change TX EQ setting from (7.2 km) to (0 km). Then attempt transmitting facsimile data.

Printing list of system settings (parameter list)

Procedure

→ (4 times, slowly) → → → (Printing begins. 2 sheets of lists will be printed.) →

Monitoring RX line

Procedure

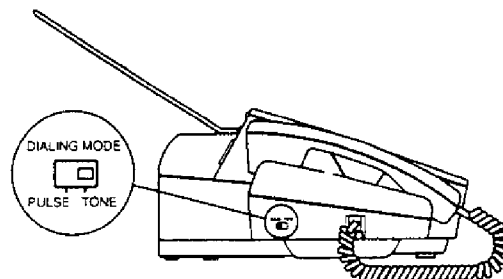
→ (4 times, slowly) → → → → → → → → (Monitoring: Enable) → → (Twice)

5.4a Initialization of Facsimile PX-1.

Changing the dialing method

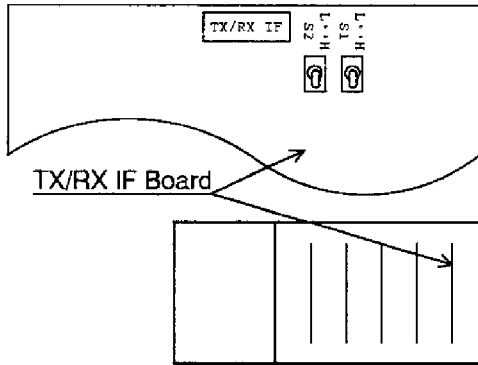
Change dialing method to tone dialing.

1. Slide the lever on the side of handset hanger to "TONE".



5.5 Switch Settings for Antenna Cable Length

The toggle switches S1 and S2 on the TX/RX IF board of the Communication Unit should be changed depending on the antenna cable length as follows. (This changes the output level of the TX/RX IF board.)

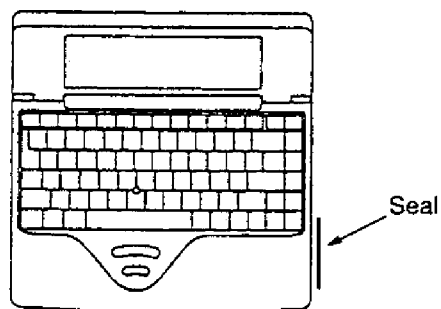


Antenna Cable Length (m)	S1	S2	Remarks
25 or less	L	H	Select either.
	H	L	
26 or more	H	H	(Factory setting)

Communication Unit (Top View)

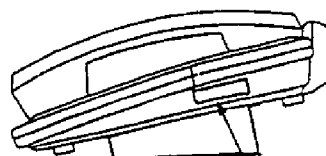
5.6 Attaching the Compass Safe Distance Seals and PC Keyboard Sticker

The Compass Safe Distance Seals (supplied as installation materials) for the units shown below (communication unit as well) should be attached at installation. Then attach keyboard sticker for PC supplied as installation materials.



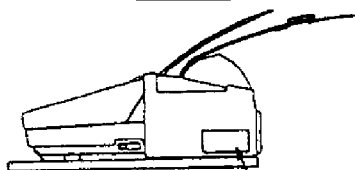
(Standard: 0.5m)
(Steering : 0.4m)

T-2110



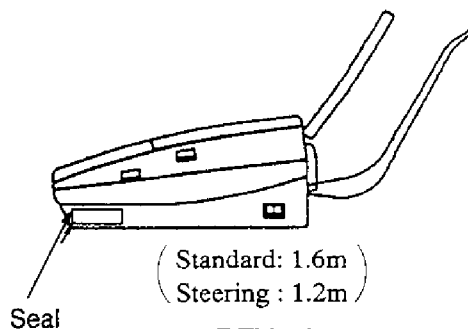
(Standard: 0.5m)
(Steering : 0.4m)

FC622SL1WG



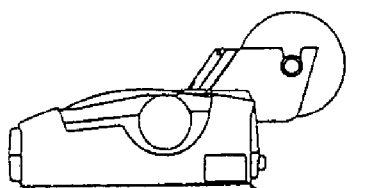
(Standard: 1.1m)
(Steering : 0.9m)

PX-150/UF-128M



(Standard: 1.6m)
(Steering : 1.2m)

PFX-50



(Standard: 1.0m)
(Steering : 0.8m)

PP-510

6. Checking the Installation

General Before turning on the system, check for proper installation, following the procedure shown below.

Standard Equipment

Communication unit Are all connectors firmly fastened?
Is the copper strap firmly fastened?

Junction boxes IB-310/IB-311 Are all connections on the terminal board correctly made?
Are all cables grounded by cable clamps?
Is the unit properly grounded?

**Telex Distress Alert Button/
Telephone Distress Button** Are all connections on the terminal board correctly made?

Antenna unit Is the unit properly grounded?

Printer Is the unit firmly fastened by mounting fixtures?

Telephone Is the mounting base firmly fastened?
Is the unit firmly fastened to the mounting location (bulkhead, tabletop)?

Optional Equipment

Facsimile Is the unit firmly fastened?

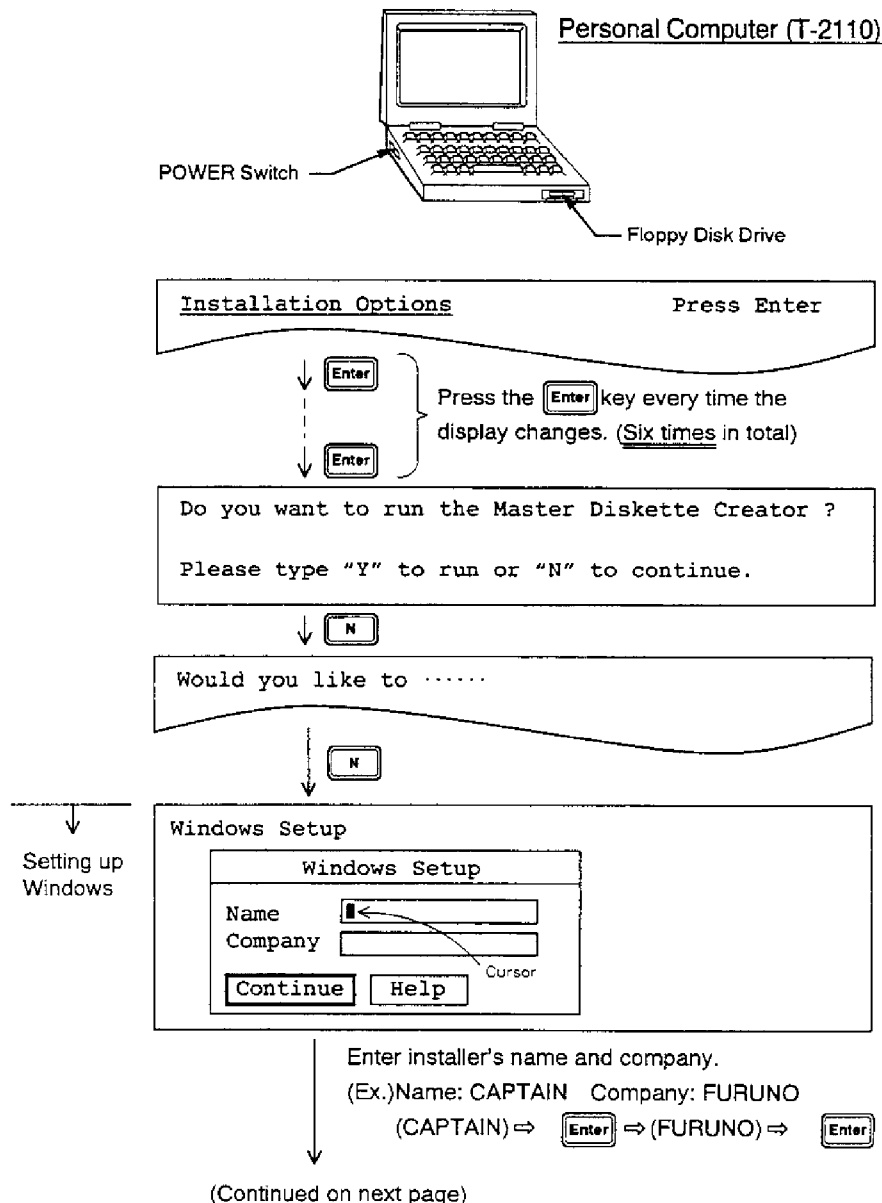
Received call unit Are all connections on the terminal board correctly made?

7. System Setup by PC

7.1 Turning on the Power

Telex operations (Class 1 system) are performed on the Terminal Unit, which normally is a laptop personal computer (PC). The PC supplied in the standard package is the Toshiba T-2110. For Class 2 system, prepare a PC locally (IBM PC compatible) for setting up the Communication Unit.

The following shows how to setup the personal computer T-2100. When turning on the PC (T-2110) for the first time, the display should look something like the figure shown below. Setup the PC by following the procedure below.



(From previous page)

Windows Setup

Windows Setup		
Name:	CAPTAIN	
Company:	FURUNO	
<input type="button" value="Continue"/>	<input type="button" value="Change"/>	<input type="button" value="Help"/>

If OK, press .
(If changed, press and .)
The previous display appears.

Windows Setup

Printer Installation

<input type="button" value="Install"/>
<input type="button" value="Cancel"/>
<input type="button" value="Help"/>

Cursor → Generic/Text Only

Press and to select
"Generic/Text Only".

Windows Setup

Printer Installation

<input type="button" value="Install"/>
<input type="button" value="Cancel"/>
<input type="button" value="Help"/>

LPT1:

Press to select "LPT1".

20 to 30 seconds later

Windows Display

To escape from windows, press
while pressing and holding down .
(If you can not escape, repeat this operation.)

Exit Windows

This will end your Windows session.

<input type="button" value="OK"/>	<input type="button" value="Cancel"/>
-----------------------------------	---------------------------------------

"c:\>" display appears. (Continued on page 7-4)

7.2 Making FELCOM 80 System Program

Overview

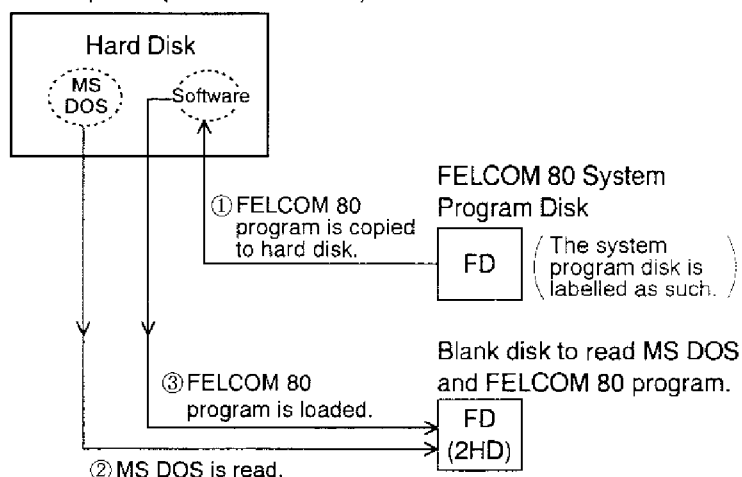
To enable telex communications, copy the system program of the FELCOM 80 to a blank floppy disk, using the Terminal Unit (PC, T-2100) and the FELCOM 80 system program disk.

For Class 2 system, setup the Communication Unit (page 7-6) after making FELCOM 80 system program as shown below.

How do you make it?

First, locate the FELCOM 80 system program disk (no MS DOS) and prepare a blank floppy disk. (Both disks are supplied by FURUNO.) Then, follow the procedure shown below.

Personal Computer (Toshiba T-2100)



Basic procedure



1. Find the FELCOM 80 system program disk and prepare a blank floppy disk.
2. Load the FELCOM 80 system program into the hard disk of the PC.
3. The FELCOM 80 system program plus MS DOS are automatically copied to the blank floppy disk.

The FELCOM 80 is started up using the floppy disk prepared here; it is not started through the hard disk. Store the system program disk in a safe place, since it must be used again if the floppy disk prepared here is damaged.

Detailed procedure

Copying system program

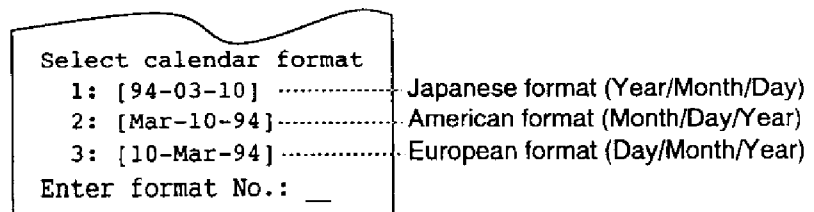
Display



- | | |
|---|--|
| <p>1. Turn on the PC.</p> <p>2. Insert the FELCOM 80 system program disk in disk drive of PC.</p> <p>3. Type a: install.</p> <p>4. Press the  key.
System program is copied to hard disk.</p> <p>5. Remove system program disk and insert blank floppy disk.</p> <p>6. Press the  key.
First the disk is formatted. It takes about one minute. After formatting is completed, the MS DOS and the FELCOM 80 system program are automatically copied to the blank disk.</p> | <p>.....> c:\></p> <p>.....> c:\> a:install</p> <p>.....> Wait a moment, please...
↓ several seconds later
Remove program FD and insert blank FD(2HD)!

Press ENTER</p> |
|---|--|

Selecting calendar format

7. The calendar (date) format display appears. Select format desired.



8. To select the American format, for example, press  and . The date appears at the top right corner on the normal display. See page 7-6.

Selecting directory-path for Telex messages

9. Specify directory where to store Telex messages. You may select the default name of "TELEX" by selecting "Yes", or use a different name by selecting "No".

Enter directory-path for storing TELEX
text (default: "A\TELEX")
Enter default ? (Y/N)

Directory Name

• To use default directory name;	• To use different directory name;
① Press <input type="button" value="Y"/> → <input type="button" value="Enter"/> .	① Press <input type="button" value="N"/> → <input type="button" value="Enter"/> .
② Confirm name and press <input type="button" value="Y"/> → <input type="button" value="Enter"/> .	② <div style="border: 1px solid black; padding: 5px; display: inline-block;">Enter directory-path (full path):</div> Enter directory name. (Ex.) Type a:\FURUNO then, press <input type="button" value="Enter"/> key. <div style="text-align: center; margin-left: 100px;">└──────────┘ Directory name (max. 8 characters)</div>
	③ Confirm name and then press <input type="button" value="Y"/> → <input type="button" value="Enter"/> .
	④ Confirm name once again and then press <input type="button" value="Y"/> → <input type="button" value="Enter"/> .

10. When the display shows c:\> turn off the power. Then, execute setting up and enter answerback code referring to the next pages.

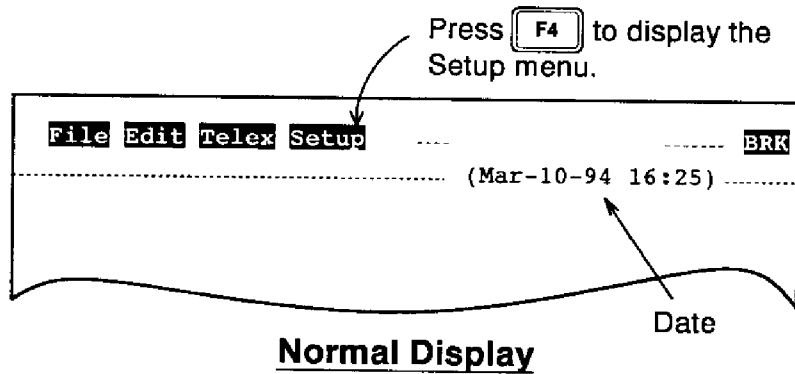
7.3 Setting Up

Overview

The following three items should be set up at installation.
(For Class 2 system, the Communication Unit should be setup.)

When no navigation data is input or gyro data can not be entered, enter them manually referring to **page 2-9 in Part 2** of Operator's Manual.

Insert the system program disk into the disk drive of the PC (T-1900). Then, turn on the PC. After a while, the Main Menu, shown below, appears.



Setting up

Key Operation


1. Terminal Unit (PC) ⇒
 (Entry of date,
answerback code, etc.)
 ↓
 See next page.
2. Editor Screen ⇒
 (Line No. ON/OFF,
 Cursor type selection, etc.)
3. Communication Unit ⇒
 (Selection of ocean region,
 Telephone/Fax setting, etc.)

For further details, refer to chapter 2 in PART 2 of Operator's Manual.




7.4 Registering Answerback Code (Class 1 only)

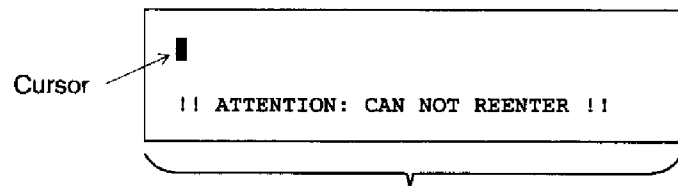
Overview


Answerback code should be entered at installation.

The answerback code can not be changed once registered. Confirm the code before pressing the  key.

Procedure

Press ,  and  in this order at normal display.



Enter your ship's answerback code given by Inmarsat, then press the  key.
 [Normally, answerback code consists of telex IMN (IMN: Inmarsat Mobile Number) given by Inmarsat and four characters you applied to Inmarsat for.]

How to enter

Telex IMN No. 4 characters X
 (9 digits) space space

(Ex.) 343164830 JFKS X
IMN No. 4 characters

7.5 Updating Master System Program Disk

(For version number 8 and after)

To update the master system program disk, follow the procedure shown below. The contents of the memory in the FELCOM 80 program disk being used are not disturbed. Namely, LES names, station lists, terminal setup (answerback code), editor setup, etc. are not erased when updating a master floppy disk.

Procedure

1. At the normal display, press **F1**, **9** (Quit), **↑** (YES), **Enter**. The following display appears.

```
A: \> █
```

2. Remove FELCOM 80 program disk and insert new master system program disk.

3. Type UPDATE (or update) and press **Enter**.

```
A: \> update
```



```
FELCOM 80 TELEX Terminal .....
|
Remove program FD and insert execution FD!
Press ENTER.
```

4. Remove master program disk and insert FELCOM 80 program disk again. Then press **Enter**.

```
Updating TELEX Terminal program.
Terminal update is completed !!

A:\> █
```

(Updating procedure is completed.)

5. Type TERM (or term) and press **Enter**. After a while, the normal display appears.

**Confirming
version no.**

Press **F11** while pressing and holding down **Alt**.

```
          Status Message
-----
Program No. 165-0084-008
                    |
                    |----- version no.
                    |
                    <To continue: ESC>
```

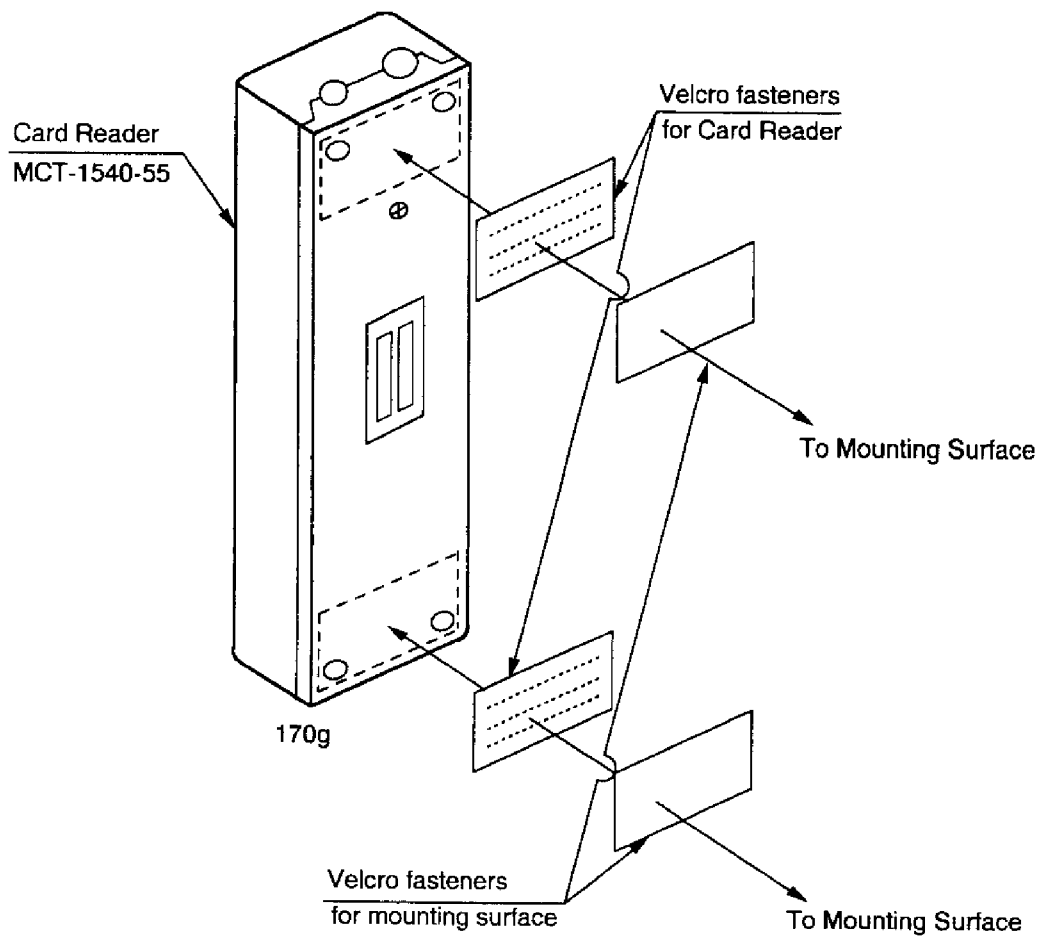
To return to the normal display, press **Esc**.

8. Card Reader

8.1 Card Reader Configuration

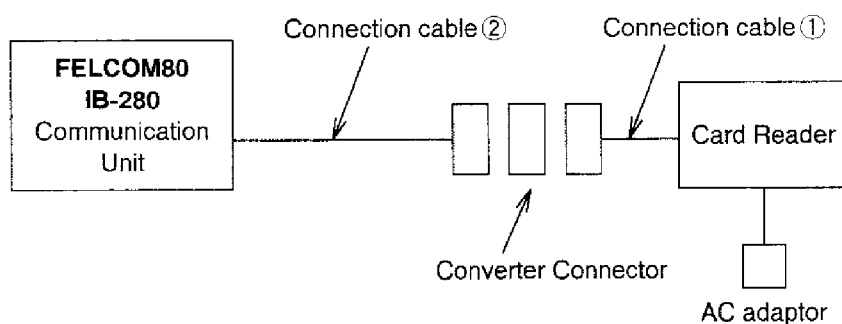
Name	Type	Code no.	Remarks
Main Unit	MCT-1540	000-043-332	
Installation Materials	CP-16-01000	004-437-140	Cable, Connector, Velcro fastener
Extension Cable	CP-16-01010	004-434-970	No armor, No connector 50m
	CP-16-01020	004-434-980	No armor, No connector 100m
	CP-16-01030	004-434-990	No armor, No connector 150m
Modem	CP-16-01040	004-435-000	Optional

8.2 Mounting the Card Reader



- The card reader should be installed nearest the most frequently used telephone.
- The card reader connects to the communications unit (IB-280) of the FELCOM 80 with two connection cables (supplied) whose total length is 6.5 meters. Longer lengths are optionally available.

8.3 Connection of Card Reader



- **Power**
Power the card reader with 100 VAC power. An AC adaptor comes with the card reader for plugging the equipment in an electrical outlet.
- **Connection cable 1**
Connect the 8-pin connector to the card reader and the 25-pin connector to the converter connector.
- **Connection cable 2**
Connect one end of the cable (type 16S0164, 5 m) to the PC DATA connector on the communications unit and the other end to the converter connector.

If the standard connection cables are not long enough, longer cables are optionally available, or use the internal modem (option). Install longer cable when the distance to the communications unit is between 5 and 150 meters and use the modem when the distance is greater than 150 meters. See page S-3 for details.

8.4 Setting up Telephones/Facsimiles

Set up telephones and facsimiles according to call application desired.

Application

1. Non-credit card call only: Only non-credit card call can be made; credit card call cannot be made.
2. Credit card call/non-credit card call:
Both credit card and non-credit card calls can be made.
3. Credit card call: Only credit card can be used to make call.

Preset

1. Pick up receiver of No.1 telephone.
2. Dial setting desired.
 - No.1 telephone and No.1 facsimile cannot both be set for credit card only call.
 - Beep sounds for correct setting. Busy signal is emitted for error.

<u>*94</u>	<u>P1</u>	<u>P2</u>	<u>#</u>
Code number			End code
	P1	P2	
	0: All terminals	0: Non-credit card call only	
	1: No.1 Telephone	1: Credit card call/non-credit card call.	
	2: No.2 Telephone	(This is the default setting.)	
	3: No.3 Telephone	2: Credit card call/non-credit card call	
	4: No.4 Telephone	3: Credit card call only	
	5: Facsimile	4: Credit card call only	
	6: Facsimile		

3. Hang up the receiver.